Technical Reports

February 17, 1960
Vol. 13; No. 2

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UNITED STATES DEPARTMENT OF COMMERCE

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February 1950

APPAREL

PHYSIOLOGICAL ADAPTATIONS OF MAN TO COLD. ARCTIC UNIFORMS, ELECTRICALLY HEATED GLOVES AND MITTENS, EXPOSURE SUITS; MANUAL DEXTERITY WITH GLOVES AND MITTENS; ELECTRICALLY HEATED FLYING CLOTHING, BY ARLIE V. BOCK. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. MONTHLY PROGRESS REPORTS NO. 15, 16, 17. Mar - Jul 1944. 5p table Mi $1.25, Ph $1.25. PB 99244
Contract no. OEMcmr-54.

PHYSIOLOGICAL ADAPTATIONS OF MAN TO COLD. ELECTRICALLY HEATED FLYING CLOTHING, BY ARLIE V. BOCK. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. BIMONTHLY PROGRESS REPORTS NO. 18, 19, 20, 21, 22, 23, 24. Sep 1944 - Nov 1945. 9p Mi $1.25, Ph $1.25. PB 99247
Contract no. OEMcmr-54.

PHYSIOLOGICAL STUDY OF COLD WEATHER FOOTWEAR, by D. R. Griffin, M. Mereira and H. S. Belding. Harvard University. Fatigue Laboratory. Nov 1943. 28p graphs, tables Mi $2.00, Ph $3.75. PB 99292
OSRD contract no. OEMcmr-54.

CHEMICAL AND ALLIED PRODUCTS

Plastics and Plasticizers

LOW-LOSS, ARC-RESISTANT PAPER LAMINATES, by A. L. Alesi, P. J. Boeke and N. Vasileff. Princeton University. Plastics Laboratory. Jan 1949. 23p graphs, tables Mi $2.00, Ph $3.75. PB 99426
Modification of melamine-formaldehyde resin by butoxydiaminosilane has been effected with improvement of the mechanical and electrical characteristics of the

laminate and without impairment of the arc resistance. The properties of this material exceed specification requirements, in addition to an arc-resistance value of 110 seconds. Dept of the Army Project #-99-15-022. Signal Corps Project 152B.

Ordnance Chemicals

SELENIDES TO AUGUST 1, 1944, by C. D. Hurd. Northwestern University, Evanston, Ill. Aug 1944. 14p table Mi $1.75, Ph $2.50. PB 98543

The ways and means are given for the preparation of selenides, chiefly organic selenides, for physiological testing. Two of these are new compounds, namely, 2-chlorovinylarsenic selenide and methyl selenolfluoroacetate. The ability to distill 2-chloroethyl selenide without decomposition at 96°-100°(0.1 mm) is a new observation of value in its purification. Toxicity data are reported for 2-chloroethyl selenide, 2-chlorovinylarsenic selenide, carbon diselenide, and methyl selenolfluoroacetate. Cadmium selenide and cadmium selenate were also investigated. OSRD 4051.

Miscellaneous Chemicals

ABFALLSCHWEFELSÄURE. (USE OF SULPHURIC ACID WASTE LYE). I. G. Farbenindustrie A. G., Schkopau, Ger. 1939-1944. 177f (Text in German) Mi $6.50, Enl Pr $23.75. PB 96594

1. Sulfuric acid - Derivatives - Germany 2. Sulfuric acid waste lye 3. Micro BIOS FD 2602/47, Frames 1-177.

ALKYLACROLEINE. (TESTS ON ACRYLNITRIL). I. G. Farbenindustrie A. G., Leverkusen, Ger. 1944. 9f graph, tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 98909

1. Acrylonitrile - Polymers - Germany 2. Acrylonitrile - Preparation - Germany 3. Micro BIOS FD 2651/46, Frames 1-7.

Abstract available as PB 98909s. 2p. Mi $1.25, Ph $1.25.

ANALYTISCHE KONTROLLE VON ELEKTROLYTISCH HERGESTELLTEN $(NH_4)_2S_2O_8$ LÖSUNGEN. (ELECTROLYTICALLY PRODUCED AMMONIUM PERSULPHATE SOLUTIONS). I. G. Farbenindustrie A. G., Schkopau, Ger. n.d. 44f (Text in German) Mi $2.50, Enl Pr $7.50. PB 96612

1. Reduction, Electrolytic - Germany 2. Ammonium persulfate - Preparation - Germany 3. Micro BIOS FD 2073/47, Frames 1-44.

BETRIEBS VORBERICHT FÜR NITRAZOL CP EXTRA (PNA-DS-BORFLUORID) (PRELIMINARY REPORT ON NITRAZOL CP EXTRA (PNA-DS BORON FLUORIDE)). I. G. Farbenindustrie A. G., Offenbach, Ger. Jan 1938. 4f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96624

1. Nitrazol CP (Trade name) 2. Boron fluoride - Compounds - Germany 3. Micro BIOS DOCS 2357/1675/2 4. Micro BIOS FD 1933/47, Frames 1-4.

DIOXYSULFEN C (NR. 3197-0). I. G. Farbenindustrie A. G., Ludwigshafen, Ger. n.d. 3f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96627

1. Dioxysulfen C (Trade name) 2. Micro BIOS DOCS 2526/1786/2 3. Micro BIOS FD 3154/47, Frames 1-3.

IMPREGNATION MEDIA FOR OIL-PROOFING PAPER AND CARDBOARD. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1943. 25f (Text in German) Mi $2.00,

Enl Pr $5.00 PB 98173
1. BT (Trade name) 2. Mowilith D40 (Trade name) 3. Mowilith D 50W (Trade name) 4. Impregnants - Tests - Germany 5. Dispersing agents - Production - Germany 6. Waterproofing agents - Research - Germany 7. Micro BIOS FD 2509/47, Frames 1-23.
Abstracts available as PB 98173s. 2p. Mi $1.25, Ph $1.25.

INFRARED AND RAMAN SPECTRA OF CHLORINE TRIFLUORIDE, by E. A. Jones, T. F. Parkinson and R. B. Murray. U. S. Atomic Energy Commission. Jan 1949. 3p table Limited supply mimeo: $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99350
Results of measurements of the Raman spectrum of liquid chlorine trifluoride and the infrared absorption spectrum of the gas in the 2 to 25 μ region. ACED 2480.

INFRARED SPECTRA AND STRUCTURE OF REACTION PRODUCTS OF ETHANOLAMINE AND AROMATIC ALDEHYDES, by L. W. Daasch and U. E. Hanninen. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 14p graphs Mi $1.75, Ph $2.50. PB 99230
In the course of studies on aldehyde-amine condensation products as rubber vulcanization accelerators, the condensation products of ethanolamine and aromatic aldehydes appeared valuable for correlating structure with accelerator activity. Infrared absorption spectra show that, the reaction products of ethanolamine with five aromatic aldehydes (benzaldehyde, salicylaldehyde, p-hydroxybenzaldehyde, o-chlorobenzaldehyde, and p-methoxybenzaldehyde) have the Schiff base structure rather than the oxazolidine ring structure. NRL R3526.

MOWILITH D1 ABOUT 50%, A NON-PLASTICISED, VERY FINE PARTICLE SIZE DISPERSION, AND MOWILITH D3 ABOUT 43%, A NON-PLASTICIZED MIXED POLYMERISATE DISPERSION. I. G. Farbenindustrie A. G., Schkopau, Ger. 1942-1943. 24f (Text in German) Mi $2.00, Enl Pr $5.00. PB 98176
1. Mowilith D1 (Trade name) 2. Mowilith D3 (Trade name) 3. Mowilith DV (Trade name) 4, Dispersing agents - Production - Germany 5. Micro BIOS FD 2507/47, Frames 1-21.
Abstracts available as PB 98176s. 2p. Mi $1.25, Ph $1.25.

OXYCHIN. BETRIEBSVORSCHRIFT (DIRECTIONS FOR PREPARATION OF 8-HYDROXYQUINOLINE). I. G. Farbenindustrie A. G., Elberfeld, Ger. Jun 1942. 7f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96617
1. Quinoline, 8-Hydroxy - Production - Germany 2. Micro BIOS /DOCS/ 2526/1526 3. Micro BIOS FD 3155/47, Frames 1-6.

PLASTIC PRODUCTS 28840 AND HOSTAM 40 FOR INJECTION MOULDING. I. G. Farbenindustrie A. G., Schkopau, Ger. 1941-1942. 15f tables (Text in German) Mi $1.75, Enl Pr $3.75. PB 98159
1. Hostam 40 (Trade name) 2. Plastic 28840 (Trade name) 3. Plastics - Tests - Germany 4. Micro BIOS FD 256/47, Frames 1-14.
Abstracts available as PB 98159s. 1p. Mi $1.25, Ph $1.25.

PREPARATIVE ORGANIC CHEMISTRY, PT. I, BY KARL ZIEGLER AND OTHERS (FIAT REVIEW OF GERMAN SCIENCE, 1939-1946). U. S. Field Information Agency, Technical. 1948. 439p tables (Text in German) Mi $9.00, Ph $55.00, Mimeo: $3.00 PB 99207

Title page in English. Preface and table of contents in English, French and German. For pt. 2 see PB 85040; for Pt. 3 see PB 85041.

PRODUCTION SCHEDULE NO. 48A. INTERMEDIATES DEPT. INFORMATION BY ITEMS PRODUCED: M-CHLOROTOLUENE, TRADE NAME M-CHLORTOLUOL. I. G. Farbenindustrie A. G., Uerdingen, Ger. n.d. 5f (Text in English) Mi $1.25, Enl Pr $2.50. PB 96625
1. Toluene, m-Chloro - Preparation - Germany 2. Micro BIOS/DOCS/2526/1578/37a 3. Micro BIOS FD 1833/47, Frames 1-5.

SURFACE TENSION ANOMALIES IN MELTS CONTAINING LEAD OXIDE AND BORON OXIDE, by Sölve Carlen. Chalmers University of Technology, Gothenburg, Sweden. 1949. 13p photo, drawing, graphs, tables Mi $1.75, Ph $2.50. PB 99077
1. Surface tension - Measurement - Sweden 2. Lead oxides - Sweden 3. Boron oxides - Sweden.
Transactions nr 85 (Institutionen för Selikatkemisk Forskning 20).

THEORETISCHE UND EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE OPTIK VON GEKRÜMMTEN PLEXIGLASSCHEIBEN. (THEORETICAL AND EXPERIMENTAL INVESTIGATIONS ON THE OPTICS OF CURVED PLEXIGLAS PLATES), by J. Hock. Dornier-Werke G.m.b.H., Friedrichshafen, Ger. Jan 1943. 111p photos, diagrs, graphs, tables (Text in German and English) Mi $4.75, Ph $15.00. PB 99240
Also contains (in German only) Vorabdrucke aus Jahrbuch 1942 der deutschen luftfahrtforschung, 7. lfg. p. 1-48: Über den einfluss des benzidindampfes auf das druckverhältnis eines flugmotoren-laders und die temperatur in der ladeleitung, von W. Flössel; Beanspruchung von schraubenverbindungen durch steigungsunterschiede zwischen bolzen- und muttergewinde, von Helmut Weber; Die anfachung instabiler störungen in einer laminaren reibungsschicht, von J. Pretsch; Der triebflugel, von E.v. Holst, D. Kuchemann und K. Solf; Düseneinfluss auf die windkanalkorrekturen bei ebener strömung, von V. Vandrey. The theoretical part of an experimental study on the optics of curved Plexiglas panes for aircraft nose turrets is presented. The study intends to establish optical requirements of Plexiglas for proper reduction of the visual ray deflection in sighting and navigation. Starting from basic optical laws and assumptions, the parallel displacement of a light ray passing through a curved medium, the angle of deflection caused by the curvature of the pane, the deflection of a ray by a prismatic wedge, and influence, deflection, and distortion of factors causing optical errors are discussed in mathematical terms. AAF T-2 T/2039. ZWB TB bd. 10, hft. 1.

DIE VERSUCHE VON WÜRSTLEN (KÜRO-LU) ÜBER DIE SALZSAUEABSPALTUNG AM PCU BEI TEMPER TURALTERUNG. TEIL I. ELEKTRISCHE STABILITÄTSMESSUNG. TEIL 2. OPTISCHE STABILITÄTSMESSUNG. (2-ALKYLBENZIMIDAZOLES AS DERIVATIVES FOR THE IDENTIFICATION OF ALIPHATIC ACIDS. ELECTRICAL AND OPTICAL METHODS FOR THE MEASUREMENT OF IGELIT PCU). I. G. Farbenindustrie A. G., Schkopau, Ger. 1936-1943. 46f (Text in German) Mi $2.50, Enl Pr $7.50. PB 96610
1. Benzimidazole - Derivatives - Germany 2. Acids, Aliphatic - Germany 3. Polyvinyl chloride - Germany 4. Igelit PCU (Trade name) 5. Micro BIOS FD 2323/47, Frames 1-46.

Communication Equipment

FIXED STATION RADIO REPAIR AND MAINTENANCE (PERSONNEL TRAINING TEXT). U. S. War Dept. Jun 1946. 118p photos, diagrs, tables Mi $4.75, Ph $15.00. PB 99544

1. Radio - Maintenance and repair 2. WD TM 11-477.

NETWORK APPROXIMATION IN THE TIME DOMAIN, by William H. Huggins. U. S. Air Force. Cambridge Research Laboratories, Cambridge, Mass. Oct 1949. 64p diagrs, graphs, tables Mi $3.00, Ph $8.75. PB 99352

The "least-square error" and "matched-filter" criteria for optimum time response are discussed. A new method of specifying circuit behavior in terms of semi-invariants is introduced. The first five semi-invariants provide a measure of the midband gain, time delay, rise time, assymetry, and peakedness of the impulse response. Because of their additive property, semi-invariants offer certain advantages which are illustrated by several examples. AAF CRL E5048.

RADIO FREQUENCY BRIDGE TS-196/CPM-4 AND THERMISTOR PROBE TS-194CPM-4. U. S. War Dept. Nov 1944. 42p photos, diagrs, drawings, tables Mi $2.25, Ph $5.00. PB 99492

1. Bridges, Radio frequency 2. Radio frequencies - Measurements 3. Resistors, Non-linear 4. TS-196/CPM-4 (Radio frequency bridge) 5. TS-194/CPM-4 (Thermistor probe).

SURVEY OF EXISTING INFORMATION AND DATA ON RADIO NOISE OVER THE FREQUENCY RANGE 1-30 MC/S, by H. A. Thomas and R. E. Burgess. Feb 1947. 134p fold map, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00. PB 92691

1. Radio - Noises - Gt. Brit. 2. DSIR Rad R SR 15.

Electronics

ANTENNA WAVEFRONT PROBLEMS, by Kenneth S. Kelleher. U. S. Naval Research Laboratory, Bellevue, D. C. Sep 1949. 15p diagrs Mi $1.75, Ph $2.50. PB 99488

By means of a vector notation for surfaces, relations are derived among an incident wavefront, reflector, and reflected wavefront. A method is introduced for evaluating the deviation of a wavefront surface from a plane. A number of problems, including an analysis of the wavefront from a Foster Scanner antenna, are included in order to indicate the simplicity and utility of the analysis. NRL 3530.

ANTENNANUFBAU FUER DAS WARNGERAET IM CM-WELLENBEREICH. (ANTENNAS FOR ULTRAHIGH-FREQUENCY WARNING DEVICES), by G. V. Trentini. Contance. Entwicklungsinstitut für Nachrichtenmittel. Sep 1944. 76p photos, diagrs, graphs (Text in German and English) Mi $3.50, Ph $10.00. PB 99170

A four quadrant warning device with a suitable antenna array in the cm range is

described. Radiation characteristics, measured of wave length of 10 to 20 cm, of cylindrical parabolics, funnels, parabolic funnels and angular reflectors are given. The low frequency combination of several antennas is tested and the required shape of the scattering of the sum characteristics permissible for frequency change is determined. German text will not reproduce well. AAF T-2 T/2392.

DIELECTRIC MEASUREMENT METHODS FOR SOLIDS AT MICROWAVE FREQUENCIES, by W. H. Surber, Jr., and G. E. Crouch, Jr. Princeton University. Plastics Laboratory, Princeton, N. J. Mar 1949. 14p diagrs. graphs, tables Mi $1.75, Ph $2.50. PB 99216

An experimental method of measuring the dielectric constants of solids is described for the case of medium and high loss materials. The dielectric sample is enclosed within a section of waveguide terminated by a reflecting plane, and measurements are made of the standing wave ratio and position of the voltage minimum for both a short-circuit and an open-circuit termination. A set of experimental values is given for the dielectric constants of a group of common plastics at 24,00 megacycles. A brief analysis of the effect of certain of the equipment losses is included. PU PL TR 13C.

FINAL REPORT ON NOISE REDUCTION BY DELAYED FEEDBACK, by T. T. Eaton. Radio Corporation of America. R.C.A. Laboratories, Princeton, N. J. Apr 1943. 82p photos, diagrs, graphs Mi $3.75, Ph $11.25. PB 99142

A regenerative circuit is described for improving the signal-to-noise ratio of a radar system. The theory of operation is worked out and experimental results are given. The apparatus was designed in order that experiments could be made in the laboratory which would be equivalent to tests in the field, and measurements were made of the smallest signal which could be detected on a cathode ray indicator with and without the regenerative circuit. Microwave section, National Defense Research Committee of the Office of Scientific Research and Development. Contract OEM-sr-252. NDRC Project 595. RCAL order no. 981407.

NEUE KONSTRUKTIVE MOEGLICHKEITEN IM VAKUUMROEHRENBAU DURCH ANWENDUNG DER KERAMIK-METALL-HARTLOETTECHNIK. (NEW POSSIBILITIES IN VACUUM TUBE CONSTRUCTION BY USE OF THE METAL-CERAMIC TECHNIQUE), by Hans Vatter. Germany. Zentrale für Wissenschaftliches Berichtswesen der Luftfahrtforschung. Nov 1944. 12p photo, diagr (Text in German and English) Mi $1.75, Ph $2.50. PB 99138

Vacuum-tube construction by use of the metal-ceramic technique gives improved tube characteristics and is versatile in its adaptability. The tube housing is built exclusively of metallic and ceramic parts sealed vacuum-tight by hard-soldering, so that the vacuum container itself no longer impairs the tube characteristics. UHF tubes can be constructed with vacuum-tight seals of highly-insulating and excellently-conducting parts so that the tube housing assumes either the desired simplest form or can be a component of the tuning circuit or resonant cavity. AAF T-2 T/1820. ZWB UM 803, Pt. 1, Lecture 15.

SUMMARY REPORT OF ELECTRONIC AIDS TO AIR NAVIGATION. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. n.d. 103p Mi $4.50, Ph $13.75. PB 99395

A comprehensive review is presented of the United States Air Force's past, present, and projected future research and development activities, objectives, and policies in the general and specific fields relating to the navigation of aircraft by

electronic means. While the objectives of the USAF are basically directed toward solution of problems pertinent to the navigation of military aircraft, these military developments will be in most cases partially applicable to problems of commercial and civilian aviation. Errata sheet is dated Feb 6, 1948.

WIDE ANGLE METAL PLATE LENS, by John Ruze. U. S. Air Materiel Command. Cambridge Field Station, Cambridge, Mass. Oct 1947. 30p photo, diagrs, graphs Mi $2.00, Ph $3.75. PB 99393

A description is given of a wide angle metal plate lens of the "constrained" or "binormal" type. The contour equations are derived and indicate that no aberrations exist at two angular points symmetrically located about the lens axis. The phase errors at a general feed position are determined. The magnitude of these phase deviations limit the total maximum scanning angle. Analysis indicates that lenses of this type are capable of scanning an angular region of approximately 50^{o}. Experimental data is included on a K-band lens. This lens is capable of scanning a one-degree beam, a total of 50^{o} when the primary feed is moved on the arc of best focus. When the feed motion is constrained to a circular arc, a total of 30^{o} is scanned.

Miscellaneous

CATALOGUE CONCERNING WELDING OF LARGE SEAMLESS PIPES. Kammerich Werke Aktiengesellschaft, Brackwede-Süd, Ger. n.d. 4f photos Mi $1.25, Enl Pr $2.50. PB 99311

1. Pipe - Welding - Germany 2. Micro BIOS FD 644/49, Frames 1-4.

"DURAC" NICKEL-CADMIUM ALKALINE BATTERY, by G. D. Chu. National Research Council of Canada. Electrical Engineering and Radio Branch. Oct 1947. 68p photos, graphs, tables Mi $3.00, Ph $8.75. Also available from the National Research Council of Canada, Ottawa. Part B. 9p. 1948. Mi $1.25, Ph $1.25. PB 99432 - PB 99432s

This report on the "Durac" nickel-cadmium alkaline battery is divided into two main parts: Part A is a brief summary of German data, performance claims and manufacturing techniques, as compiled from various reports. Part B is a description of the procedure and results of tests conducted in the Electrical Engineering Laboratory of the National Research Council. Bibliography, p. 5-9. NRCC ERB 172.

ELECTROPLATING JOB SHOP. U. S. Office of Technical Services. Nov 1949. 9p diagrs (1 fold) Mimeo: $.25. PB 99147

1. Electroplating 2. Electroplating - Equipment 3. TAS 20.7.

INFLUENCE OF CARBON COOLING ON THE HIGH-CURRENT CARBON ARC, by Wolfgang Finkelnburg. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Aug 1948. 20p photos, graphs Mi $1.75, Ph $2.50. PB 99477

The influence of carbon cooling, on a high-current carbon arc was studied. Technical advantages of carbon cooling are increased steadiness of the arc and its radiation, considerably reduced positive carbon consumption, a shallower crater, and the possibility of using higher wattage and obtaining greater brilliancies. The main physical effects are marked decreases of arc voltage and positive carbon evaporation. The empirical relations between current, voltage, net arc wattage, gross arc wattage, crater brilliancy, carbon consumption, light efficiency, and crater depth for the

cooled and the uncooled arc are presented in the form of graphs. The differences between arcs with cooled and uncooled carbons are explained. ERDL 1054.

NIGHT-WORK LIGHTING SYSTEMS FOR CONSTRUCTION EQUIPMENT, BY CHARLES F. CASHELL. U. S. ENGINEER BOARD. FIRST INTERIM REPORT. May 1946. 142p photos, drawings, tables Mi $5.75, Ph $18.75. PB 99480

Report covers a study of the lighting requirements to permit efficient night operations of power cranes, road graders, road rollers, tractors, etc. Describes the development of suitable lighting equipment and sets forth data on its proper location in order to meet lighting requirements. ENG EB Rept 980.

PREPARATION OF BEESWAX. Gt. Brit. Ministry of Agriculture and Fisheries. Jul 1949. 4p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.05. PB 99411

A review of the refining and processing methods. Advisory leaflet no. 347 N.A.A.S.

RESEARCH-MEASUREMENT OF POWER DISSIPATION TEMPERATURE RISE CHARACTERISTICS OF VARIOUS CRYSTALS, BY L. ROSENTHAL. QUARTERLY REPORT NO. 1, JULY 1, 1947 - SEPTEMBER 15, 1947. n.d. 36p drawings, graphs, tables Mi $2.25, Ph $5.00. PB 92832s

Research carried on at Rutgers University. Department of Electrical Engineering.

RESEARCH-MEASUREMENT OF POWER DISSIPATION TEMPERATURE RISE CHARACTERISTICS OF VARIOUS CRYSTALS, BY L. ROSENTHAL. QUARTERLY REPORT NO. 2, SEPTEMBER 15, 1947 - DECEMBER 15, 1947. n.d. 38p diagrs, drawings, graphs, tables Mi $2.25, Ph $5.00. PB 92832s2

Research carried on at Rutgers University. Department of Electrical Engineering.

SENSITIVE FLOW-TYPE GLASS ELECTRODE, by Martin Kuna. U. S. Atomic Energy Commission. Oak Ridge National Laboratory. Jan 1949. 4p drawings Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99336

Describes the construction and characteristics of a sensitive flow-type glass electrode with approximately 0.2 ml. flow chamber, for continuous pH measurement of eluates from ion-exchange columns; calibration and test data included; sketch. AECD 2474.

FOOD AND KINDRED PRODUCTS

CHEMICAL REQUIREMENTS OF THE FOOD INDUSTRY, by John W. Rosston and LaVern Wm. Cutler. Stanford Research Institute, Stanford, Calif. Sep 1947-Aug 1948. 641p tables Mi $9.00, Ph $81.25. PB 98707

This report is primarily an evaluation of published literature dealing with the problem. It is a bibliography of sixteen hundred references, which were selected primarily from Industrial Arts Index, the Agricultural Index, Wilson's Vertical File Services (1939 through 1947), the Catalog of Public Documents (1938-39), and the Monthly Catalog of Public Documents (1940 through 1947).

EVALUATION OF IN-FLIGHT MEALS AT STRATEGIC AIR COMMAND BASES, by Caswell Grave, II. U. S. Air Proving Ground, Eglin Air Force Base, Fla. Oct 1949. 22p Mi $2.00, Ph $3.75. PB 99489

It was tentatively concluded that all the types of meals used were adequate, that frozen meals were most acceptable to B-36 crews with supplemented hot can and IF packet meals given an equal 2nd rating, that frozen types will be most suitable for B-36 and canned types for 4-engine bombers, and that certain items of food-preparation equipment are immediately required. It was recommended that frozen meal planning be continued and that the hot food ovens procured be of 18-24 capacity for 6 oz. 2"x3" cans. APGC Proj 34950-5.

EVALUATION OF SALT TABLETS, by Richard S. Griffith and Joseph M. White. U.S. Climatic Research Laboratory, Lawrence, Mass. Jan 1948. 13p photos, tables Mi $1.75, Ph $2.50. PB 98972

The investigation is divided into two phases. Phase I - Physical evaluation of salt forms as to: (a) sodium chloride content (b) solubility and (c) stability. Phase II - physiological evaluation of salt forms as to: (a) acceptability (b) adequacy and (c) gastrointestinal irritability. Techniques used under each phase and sub-phase are discussed. Tables and references attached. QMC EPS MR 19.

AN EXPERIMENTAL INVESTIGATION OF RANCIDITY IN FATS, BY B. F. DAUBERT AND NANCY V. PASMORE. PITTSBURGH. UNIVERSITY. DEPT. OF CHEMISTRY. REPORT NO. 16 ON CONTRACT W 11-183-QM-2150 FOR PERIOD OCT 1, 1946-JUN 30, 1949. Jun 1949. 25p graphs Mi $2.00, Ph $3.75 PB 99033

Experimental work was: (a) study the factors involved in the oxidative deterioration of a few fats and oils, and the mechanism of autoxidation and autioxygenesis as a function of temperature, and (b) the effective means for prevention of this deterioration in products of special significance in army rations. Bibliography and graphs attached. QMC FCI Contract W-11-183-qm-2150 Rpt. 16.

PACKET, ASSAULT, TYPE G, by Margaret Jackson and True W. Robinson. U. S. Air Material Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Oct 1949. 41p photos, tables Mi $2.50, Ph $6.25. PB 99325

This covers the investigation of type G, Ground Force Assault Packet, for possible use as an in-flight meal. For reasons set forth in the report this ration is not recommended. Photograph of tables appended. AAF TSEAA MR 691-2C.

PREVENTION OF BREAD STALING, BY ROY L. WHISTLER. PURDUE UNIVERSITY, LAFAYETTE, IND. AGRICULTURAL EXPERIMENT STATION. REPORT NO. 10 ON CONTRACT NO. W-11-183-QM-5796 FOR PERIOD DEC 1, 1946-JUN 30, 1949. Jun 1949. 50p graphs Mi $2.50, Ph $6.25. PB 99032

The following phases were studied: (1) Analysis of wheats to determine amylose content, (2) retrogradation studies on: (a) effect of various agents on its rate (b) effect of temperature and concentration (c) the rate of for various amyloses (d) effect of acid hydrolysis of amylose (e) effect of hypochlorite oxidation of amylose. Bibliography, graphs and tables follow each phase. QMC FCI Contract W-11-183-qm-5796 Rept 10.

REFRIGERATED GAS-STORAGE OF PEARS, by Franklin Kidd and Cyril West. Gt. Brit. Dept. of Scientific and Industrial Research. 1949. 14p graphs, tables Avail-

able from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.25. PB 99407

A study is made of the advantages of subject technique over cold storage in air. Principles are also applicable to apples. DSIR FI L 12.

REPORTS ON BIOCHEMISTRY, FOOD PRESERVATION, REFRIGERATION AND DRYING. Institut für Lebensmittel-Forschung, Munich, Ger. 1945. 163f (Text in German) Mi $6.25, Enl Pr $22.50. PB 99186

1. Food - Dehydration - Germany 2. Food - Preservation - Germany 3. Food - Packaging - Germany 4. Cheese - Preservation - Germany 5. BIOS FR 275 LD 6. BIOS/DOCS/982/1713 7. Micro BIOS FD 3199/46, Frames 1-151.

Contains list of publications issued by the institute up to July 1945. Abstract available as PB 99186s. 2p. Mi $1.25, Ph $1.25.

A STUDY OF THE OXIDATIVE DETERIORATION OF MILK FAT, BY E. W. BIRD AND OTHERS. IOWA. AGRICULTURAL EXPERIMENT STATION. REPORT NO. 11 ON CONTRACT NO. W-11-183-QM-1678 FOR PERIOD SEP 1, 1946-JUN 30, 1949. Jun 1949. 4p Mi $1.25, Ph $1.25. PB 99031

The methods reported on are: (a) The Lea aldehyde, (b) quantitative catalytic hydrogenation, (c) Kreis test, (d) the peroxide values, (e) the tocopherol determination, and (f) methods of reconstituting milk fat and dry skim milk. This is a condensation of the complete termination report. WMC FCI W-11-183-qm-1678 Rept. 11.

VITAMIN C REQUIREMENTS OF MEN DOING HARD PHYSICAL WORK, BY ARLIE V. BOCK. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. MONTHLY PROGRESS REPORT NO. 1. Aug 1943. 1p Mi $1.25, Ph $1.25. PB 99025

1. Vitamin C - Metabolism 2. Harvard University. Fatigue Laboratory.

Contract OEMcmr 313. See also PB 99025s, abstract. 1p. Mi $1.25, Ph $1.25.

FUELS AND LUBRICANTS

AIRCRAFT MATERIAL SPECIFICATION: GENERAL PURPOSE GREASE. Gt. Brit. Ministry of Supply. Jun 1949. 6p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35. PB 99447

1. Greases - Specifications - Gt. Brit. 2. MS DTD MS 783.

APPLICATION OF DIMENSIONLESS NUMBERS TO FLASH-BACK AND OTHER COMBUSTION PHENOMENA, by Abbott A. Putnam and Randolph A. Jensen. n.d. 10p graphs Mi $1.25, Ph $1.25. PB 99190

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

APPLICATION OF THE SCHLIEREN METHOD TO THE QUANTITATIVE MEASUREMENT OF MIXING GASES IN JETS, by W. R. Keagy and H. H. Ellis. n.d. 8p photos, drawings, graphs Mi $1.25, Ph $1.25. PB 99196

1. Photography, High speed 2. Turbines, Gas - Thermodynamics

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

AUTOMATIC SAMPLING OF GASES AT HIGH TEMPERATURES AND PRESSURES, by W. R. Wykoff and others. n.d. 6p photos, drawings, graphs Mi $1.25, Ph $1.25.
PB 99197

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

CAPTURE OF GAS-PHASE FREE RADICALS WITH ORGANIC FREE-RADICAL REAGENTS, by Frederick Benington. n.d. 5p drawings, graph, table Mi $1.25, Ph $1.25.
PB 99192

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

DETAILS OF THE FISCHER-TROPSCH PROCESS. Ruhrchemie A. G., Oberhausen-Holten, Ger. 1936-1943. 585f (Text in German) Mi $9.00, Enl Pr $77.50.
PB 99310

1. Fischer-Tropsch process 2. Coal - Hydrogenation - Germany 3. Catalysts - Hydrogenation - Germany 4. Waxes - Synthesis - Germany 5. Lubricants - Synthesis - Germany 6. Micro BIOS FD 84/48, Frames 1-523.

Abstracts available as PB 99310s. 1p. Mi $1.25, Ph $1.25.

EFFECT OF TURBULENCE ON FLAME SPEEDS OF BUNSEN-TYPE FLAMES, by David T. Williams and Lowell M. Bollinger. n.d. 10p photos, drawings, graphs, table Mi $1.25, Ph $1.25.
PB 99191

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena

EFFECT OF XYLIDINES ON THE LOAD-CARRYING CAPACITY OF AN AIRCRAFT-ENGINE OIL - II, by Walter T. Olson and Robert A. Spurr. Sep 1943. 10p graphs, tables Mi $1.25, Ph $1.25.
PB 94187

1. Xylidines 2. Lubricating oils - Tests 3. NACA E-160 4. NACA MR Sep 1943.

ESTIMATED THERMODYNAMIC FUNCTIONS OF FREE RADICALS IN COMBUSTION GASES, by J. J. Ward and M. A. Hussey. n.d. 12p tables Mi $1.75, Ph $2.50.
PB 99194

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena

NOTE ON THE CALCULATION OF MULTICOMPONENT PROPELLANT GAS COMPOSITIONS, by G. F. Sachsel and others. n.d. 4p graph, tables Mi $1.25, Ph $1.25.
PB 99195

1. Gases, Propellent - Analysis.

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

PERCHLORÄTHYLEN. (PRODUCTION OF PERCHLOROETHYLENE). I. G. Farbenindustrie, A. G., Schkopau, Ger. 1939-1944. 11f (Text in German) Mi $1.75, Enl Pr $3.75.
PB 96607

1. Ethylene, Tetrachloro - Germany 2. Micro BIOS FD 2667/47, Frames 1-11.

REPORTS WITH ANALYTICAL DATA ON SYNTHETIC GAS PURIFICATION, SULPHUR REMOVAL, AND EXHAUSTED PURIFYING SUBSTANCES. Steinkohlen Bergwerk Rheinpreussen G.m.b.H., Homberg, Ger. 1937-1944. 5f drawings, tables (Text in German) Mi $1.25, Enl Pr $2.50.
PB 99314

1. Gas - Purification - Germany 2. Micro BIOS FD 41/48, Frames 41-45.

SCHNELLBESTIMMUNG VON WASSER, ASCHE UND SCHWEFEL IN TORF. (RAPID METHODS OF EXAMINATION OF SOLID FUEL AND DETERMINATION OF WATER, ASH AND SULPHUR IN PEAT). Germany. Fachkommission Schellprüfung von Kohlensorten auf Asche und Schwefel, Berlin. 1946. 35p photos, drawings (Text in German) Mi $2.25, Ph $5.00. PB 98955

1. Fuels, Solid - Germany 2. Peat - Analysis - Germany 3. Micro BIOS FD 2933/48, Frames unnumbered.

Enlargement print of micro BIOS FD 2933/48, Frames unnumbered. Will not reproduce well. Abstracts available as PB 98955s. 2p. Mi $1.25, Ph $1.25.

STUDY OF RECOMBINATION REACTIONS OF ACTIVE PARTICLES PRODUCED BY AN ELECTRIC DISCHARGE IN WATER, by John F. Byrne. n.d. 4p drawing, table Mi $1.25, Ph $1.25. PB 99193

1. Particles, Charged - Reactions 2. Vapor pressure 3. Water vapor - Reactions

Reprinted from Third Symposium on Combustion, Flame and Explosion Phenomena.

WASSERGAS-ERZEUGER-ANLAGE ZUSAMMENSETZUNG. Steinkohlen Bergwerk Rheinpreussen G.m.b.H., Homberg, Ger. n.d. 30f drawings only Mi $2.00, Enl Pr $5.00. PB 99317

1. Water-gas - Production equipment - Germany 2. Micro BIOS FD 1156/48, Frames 552-554.

Legends in German. For statistics of production see PB 99316.

WATER-GAS AND REFORMED OVEN GAS AS PRACTICED AT HOMBERG (MOERS). Steinkohlen Bergwerk Rheinpreussen G.m.b.H., Homberg, Ger. 1942. 76f graphs, tables Mi $3.50, Enl Pr $11.25. PB 99316

1. Water-gas - Production - Germany 2. Coke oven gas - Germany 3. Micro BIOS FD 1155/48, Frames 463-465, 470-544.

Legends in German. Summary in English. For drawings see PB 99317.

HIGHWAYS AND BRIDGES

AN APPRAISAL OF THE MEMBRANE METHOD OF CURING CONCRETE PAVEMENTS, by C. C. Rhodes and J. R. Evans. Michigan. Engineering Experiment Station, East Lansing, Mich. Mar 1949. 71p photos, graphs, table Available from Michigan State College, East Lansing, Mich. $1.00. PB 99076

In evaluating the membrane or seal-coat method of curing, the authors felt that too little attention had been devoted in the past to a very important function of the curing operation - that of stress control by regulation of early temperature and moisture changes in the concrete slab. Throughout the present investigation, this function has received fully as much emphasis as the hydration needs of the cement. Engineering Experiment Station Bulletin 108. Michigan State College Bulletin v. 43, no. 18.

MAINTENANCE COSTS. REPORT OF COMMITTEE AND TWO PAPERS PRESENTED AT THE TWENTY-EIGHT ANNUAL MEETING. U. S. Highway Research Board. Sep 1949. 19p diagr, graphs, tables Available from U. S. Highway Research Board 2101 Constitution Ave., Washington 25, D. C. $.15. PB 98989

Bulletin no. 21.

REACTION OF OXYGEN WITH TAR OILS, by E. J. Dickinson and J. H. Nicholas. Gt. Brit. Dept. of Scientific and Industrial Research. Road Research Laboratory, Harmondsworth, England. 1949. 33p graphs, tables Available from British Information Service, 30 Rockefeller Plaza, New York 20, N. Y. $.25. PB 99410

Tar oils, obtained by the vacuum distillation of road tar, react with oxygen at 65°C. to give, as principal products, resinous materials, water, and carbon dioxide. Two simultaneous first-order reactions occur: one, reaction B concerned with the phenols which can be extracted from the oil by caustic soda and the other, reaction A with compounds which are not extracted by caustic soda but which contain active hydrogen. Extraction of the tar oils with caustic soda reduces their susceptibility to oxidation particularly where the phenol content is high. DSIR RR TP 16.

INSTRUMENTS

BINOCULAR COLLIMATOR MARK V (OPTICAL EQUIPMENT) SKETCH NO. 59110 WITH DRAWINGS LISTED. U. S. Naval Gun Factory, Washington, D. C. Oct 1936. 73p drawings Mi $3.50, Ph $10.00. PB 99388

1. Collimators, Binocular - Design 2. Mark III (Collimator) 3. Mark IV (Collimator) 4. Mark V (Collimator).

CHANGES IN THE THRESHOLDS OF GAS FLOW BETA COUNTERS, by Richard W. Cole. Oct 1946. 12p drawings, graphs, tables Mi $1.75, Ph $2.50 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10) PB 96969

The counters used in the experiments were operated on a Neher-Harper circuit and in the Geiger-counter region. The results show that the threshold and other characteristics of such a flow counter can change with the flow rate. Apparently the threshold changes with the flow rate because the composition of the gas in the counter changes with the flow rate. The composition changes with the flow rate if air diffuses through leaks into the counter against the higher internal pressure, or if the thin window on the counter is porous. MDDC 1475.

CLAMP-AMMETER (WESTON MODEL 633). U. S. War Dept. Jan 1945. 16p photos, diagr Mi $1.75, Ph $2.50. PB 99491

1. Ammeters 2. Weston model 633 (Clamp-Ammeter) 3. Clamp-Ammeter (Weston model 633) 4. WD TM 1078.

COLLIMATOR TELESCOPE MARK III (OPTICAL EQUIPMENT) SKETCH NO. 58601 WITH DRAWINGS LISTED. U. S. Naval Gun Factory, Washington, D. C. Apr 1934. 43p drawings Mi $2.50, Ph $6.25. PB 99389

1. Collimators, Telescope - Design 2. Mark III (Collimator).

DYNAMETER MARK 2 (OPTICAL EQUIPMENT). SKETCH NO. 13757 WITH DRAWINGS LISTED. U. S. Naval Gun Factory, Washington, D. C. Mar 1942. 44p drawings Mi $2.50, Ph $6.25. PB 99387

1. Dynameters - Design 2. Mark 2 (Dynameter).

DYNAMIC CHARACTERISTICS OF CARBON PILE VOLTAGE REGULATORS, by R. L. Mills. U. S. Naval Research Laboratory, Bellevue, D. C. 1949. 16p drawings, graphs Mimeo: $.50. PB 99198

In the study conducted on the dynamic characteristics of carbon pile voltage regulators, and electronic circuit has been designed and built by means of which empirical studies may be made of the characteristics of these regulators. Although the regulator parameters have not yet been measured accurately, the derived transfer function is found to be in essential agreement with measurements. NRL 3519.

ELECTROMAGNETIC FOCUSING DEVICE FOR THE ELECTRON MICROSCOPE, by H. T. Meryman and H. M. Sipe. U. S. Naval Medical Research Institute, Bethesda, Md. Jul 1949. 6p photos, drawings Mi $1.25, Ph $1.25. PB 99054

A description of a satisfactory adaptation to the RCA model EMU electron microscope is given together with references, drawings and microphotographs. NMRI Proj NM 000002 R4.

FOCUSING ION BEAMS IN HIGH GRADIENT TUBES, by J. L. McKibbon. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Feb 1949. 8p diagr, graph Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99371

Mathematical expressions for the focusing potentials in high gradient tubes for electrostatic accelerators, and for magnification of the focal spot over the ion source are given for a simple and practical arrangement; graph of some typical values given. AECD 2475.

1500 USES DELAY UNIT, DESIGNED BY TITTERTON. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1947. 4p drawing only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.15. PB 99128

Circuit diagram of instrument. MDDC 924.

FREQUENCY MODULATED CYCLOTRON CHARACTERISTICS, by Byron T. Wright and J. Reginald Richardson. Jun 1946. 5p photo, graphs, table Mi $1.25, Ph $1.25 Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05 PB 95792

1. MDDC 986 2. MDDC 41-1.

HIGH INTENSITY BETA-GAMMA INSTRUMENT, MARK 2, MODEL 10, "BETTY SNOOPS". U. S. Atomic Energy Commission. Argonne National Laboratory. Jan 1947. 2p drawings Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 96964

1. Beta rays - Measurements 2. Gamma rays - Measurements 3. Atomic power - Research 4. MDDC 883.

AN INTEGRATION RADIATION METER FOR BETA AND GAMMA RAYS, SIGMION - MARK 10, MODEL 70. U. S. Atomic Energy Commission. Argonne National Laboratory. May 1947. 3p drawing Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.05. PB 99131

1. Beta rays - Measurements 2. Gamma rays - Measurements 3. Meters, Radiation 4. Atomic power - Research 5. Mark 10 (Radiation meter) 6. MDDC 884.

INTERROGATION OF KURT ZERNSDORF. MECHANICAL WATER METERS, by F. C. Z. Crosse. Dec 1947. 3p Mi $1.25, Ph $1.25. PB 92554

1. Water meters - Germany 2. Siemens & Halske, A. G., Berlin 3. BIOS IR 791.

LOW PRESSURE ALPHA COUNTERS, by W. B. Bennet. U. S. Atomic Energy Commission. Technical Information Division, Oak Ridge, Tenn. Dec 1945. 4p drawings, graphs Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.05. PB 99116

1. Alpha rays - Counters 2. Atomic power - Research 3. MDDC 1652.

MEASUREMENT OF OIL-FILM PRESSURES IN JOURNAL BEARINGS UNDER CONSTANT AND VARIABLE LOADS, by A. Buske and W. Rolli. Nov 1949. 36p photos, drawings, graphs, table Mi $2.25, Ph $5.00. PB 99305

A new instrument is described by means of which the pressure of the oil film in bearings can be measured and recorded. With this device, the pressure distribution in the lubricating film of a bearing bushing was measured in the pulsator-bearing-testing machine. Translation of Messung des ölfilmdruckes in ruhend- und wechselnd belasteten gleitlagern, from Jahrbuch der Deutschen Luftfahrtforschung 1937 II p. 67-78. NACA TM 1200.

MODEL 411 SCALER, DESIGNED BY C. SEWELL. U. S. ATOMIC ENERGY COMMISSION, OAK RIDGE, TENN. DRAWING NO. 762 (REVISED). May 1947. 8p drawing only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.30. PB 99129

Wiring diagrams of electronic circuits. MDDC 914.

A MODIFIED LAURITSEN ELECTROSCOPE FOR THE MEASUREMENT OF C^{14} ACTIVITIES, by R. F. Hunter and W. B. Mann. Sep 1948. 4p drawing Mi $1.25, Ph $1.25. PB 97287

Henriques has described a modified electroscope to measure C^{14} in gaseous samples. The instrument described here is for use with solid carbonate deposits on aluminum trays. The modification which has to be made for this purpose consists essentially in removing the aluminum can from the electroscope and substituting one which operates in such a manner that the aluminum tray on which the sample is deposited can be inserted in the ionization chamber without opening this to the air. This has been achieved by using a simple sliding mechanism. The general construction of which is illustrated in a sketch. NRCC CRM 409.

NEUTRON DETECTOR HAVING UNIFORM SENSITIVITY FROM 10 KEV TO 3 MEV, by A. O. Hansen and J. L. McKibben. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Feb 1947. 7p drawings, graphs Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99382

A neutron detector having approximately uniform sensitivity from a few kilovolts neutron energy to a few million volts energy is described; paraffin cylinder, 10" x 12" surrounds a long boron proportional counter. MDDC 972.

ON THE USE OF PHOTOGRAPHIC PLATE DETECTORS IN NEUTRON EXPERIMENTS, by John C. Allred, Anne N. Phillips, Louis Rosen and Francis K. Talmadge. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Feb 1949. 9p drawings, graphs Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99377

The range distribution of Pu alpha particles were obtained as a function of time spent by photographic plates in a vacuum; discusses the use of the coincidence tech-

nique with photographic plates in a vacuum for measuring energy distribution and angular intensity distribution of neutrons; figures. AECD 2466.

PEDOGRAPH, by J. Arthur Hamilton. U. S. Engineer Board. Dec 1945. 72p photos, drawings, tables Mi $3.50, Ph $10.00. PB 99478

This report covers the basic research, development, and tests on the pedograph, a portable course recording device. Four types of instruments were developed, the thread type, pedometer type, wheel type, and automatic type. Engineering tests on the equipment were made, including the running of traverses over various types of terrain, salt spray tests, accelerated weathering tests, and tests in the tropicalization chamber. Project GN 505. ENG EB Rept 964.

RADIOACTIVITY MEASUREMENT TECHNIQUES, REVISED, by James H. Pannell. U. S. Atomic Energy Commission. Nov 1947. 29p photos, drawings, graphs, tables Limited supply mimeo $.15. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15. PB 99345

Techniques and instruments discussed include autoradiographic methods using photographic emulsions, the electroscope, scintillation methods by alpha particle impact, ionization chambers, and geiger counters. AECD 2270.

REMOTE CONTROL ANALYTICAL APPARATUS, by R. E. Curtis. U. S. Atomic Energy Commission. Hanford Engineering Works. Jun 1947. 35p photos Limited supply mimeo $.20. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20. PB 99385

The document indicated describes some of the remote control apparatus developed for routine laboratory operations involving beta and gamma emitters in the microcurie range and for the handling of alpha emitters in enclosed systems. MDDC 1101.

REPORT ON THE COLUMBIA SCALING CIRCUIT, by B. Scholoss and S. Robinson. U. S. Atomic Energy Commission. Sep 1943. 38p drawings, graphs, tables Limited supply mimeo $.20. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20. PB 99384

The results of this study fall into four groups— first, a theoretical analysis of the Columbia circuit; second, experimental data that support this analysis; third, a discussion of the data; and fourth, a description of the redesigned circuit. MDDC 821.

STEREE COMPARATOR MARK I (USED WITH AUXILIARY TELESCOPE MK. I) (OPTICAL EQUIPMENT) SKETCH NO. 58929 WITH DRAWINGS LISTED. U. S. Naval Gun Factory, Washington, D. C. Dec 1941. 13p drawings Mi $1.75, Ph $2.50. PB 99390

STORAGE AND READING OF FUNCTIONS OF ONE VARIABLE BY MEANS OF A PASSIVE NETWORK, by John D. Dillon and Byron O. Marshall. U. S. Air Force. Cambridge Research Laboratories, Cambridge, Mass. Oct 1949. 20p diagrs, tables Mi $1.75, Ph $2.50. PB 99351

A method is described for storing a table of functions of a single variable in a network of resistors whose values are not critical. There is no theoretical limit to the size or accuracy of the table and the output is of serial binary form. AAF CRL E5049.

SUGGESTIONS TOWARD IMPROVING THE ACCURACY OF THE PASSIVE SIMULATOR, by Victor B. Corey. U. S. Atomic Energy Commission. Jul 1947. 6p Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99361

Some of the present characteristics of the passive one-dimensional simulator are discussed briefly; experiments are outlined which might be carried out to determine whether the accuracy of passive simulator solutions of complex problems can be significantly improved by using different operating procedures. AECD 2297.

THEORY OF THE SYNCHRO-CYCLOTRON, by D. Bohn and L. L. Foldy. U. S. Atomic Energy Commission. May 1947. 19p graphs Limited supply mimeo: $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.10. PB 99349

A general expression for the capture efficiency is presented; qualitative discussion of factors determining capture efficiency; the equilibrium orbit; phase oscillations; range of phase stability, pendulum model; determination of catching efficiency; return of ions to the origin; results for efficiency; comparison with experiment; acknowledgements; appendix; calculations; figures. MDDC 933.

THREEFOLD COINCIDENCE SYSTEM BASED UPON A 10^{-6} SECOND RESOLUTION TIME, by Wendell H. Bradley and Bernard Epstein. U. S. Atomic Energy Commission. Oct 1944. 14p photos, drawings, graphs Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99383

A report upon the design, construction, and method of testing of a one microsecond coincidence time system. MDDC 802.

VORTEX THERMOMETER FOR MEASURING TRUE AIR TEMPERATURE AND TRUE AIR SPEEDS IN FLIGHT, by Bernard Vonnegut. General Electric Co. Research Laboratory, Schenectady, N. Y. Sep 1949. 29p photos, drawings, graphs Mi $2.00, Ph $3.75. PB 99102

1. Thermometers, Vortex 2. Thermometers, Aircraft 3. Air speed - Calculation 4. GE RL 247.

Occasional report no. 14, Project Cirrus. 4th occasional report under Contract no. W-36-039-sc-38141.

LEATHER AND LEATHER PRODUCTS

TESTING OF DRI SEAL NO. 940 TREATED CHROME LEATHER FOR RESISTANCE AGAINST FUNGI AND MITES, by C. C. Yeager. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, Ohio. Nov 1947. 4p photos Mi $1.25, Ph $1.25. PB 98754

Experiments were carried out to test the resistance of chrome-tanned leather, treated with Dri Seal No. 940 containing 2.5% copper 8-quinolinolate, to mites and mildew. Results showed Dri Seal No. 940 to possess mite-repellent properties in addition to being fungicidal and fungistatic. Organisms used were Aspergillus niger, Trichoderma virida, Aspergillus terreus, and Penicillium citrinum. AAF TSEAM M5351, add 1.

LUMBER AND WOOD PRODUCTS

ARBETSVIRKE TIL BESTADSHUS AV STEN (TIMBER FOR TEMPORARY USE WHEN BUILDING DWELLING HOUSES OF BRICK OR CONCRETE), by Mejse Jacobsson. Sweden. Statens Kommittee för Byggnadsforskning. 1949. 118p photos, drawings, tables (Text in Swedish) Mi $4.75, Ph $15.00. PB 99000
1. Houses - Construction - Use of timber - Sweden 2. Timber - Use in construction
Meddelanden nr. 13. Summary in English.

CHEMICAL COMPOSITION OF THE EXTRACTIVES FROM DOUGLAS FIR (PSEUDOTSUGA TAXIFOLIA BRITT), by H. M. Graham. Jun 1948. 46p diagrs, tables Mi $2.50, Ph $6.25. PB 98807
The materials found were oleic, linoleic, behenic, lignoceric, and abietic acids, phytesterol, pseudotsugol, and galactan. A new industrial use of this wood is in the production of ethanol by the fermentation of wood sugars obtained by the saccharification of saw mill wastes. Phenolic compounds in the wood resist attacks of fungi and insects. Thesis: Oregon State College, Corvallis. This report will not reproduce well.

EXPERIMENTS ON THE PRESERVATION OF MINE TIMBER, BY J. BRYAN AND N. A. RICHARDSON. GT. BRIT. DEPT. OF SCIENTIFIC AND INDUSTRIAL RESEARCH. FOREST PRODUCTS RESEARCH LABORATORY, AYLESBURY, ENG. REVISED SEP 1948. 1949. 12p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.20. PB 98881
A simple open tank treating techniques described. Results clearly show timber life greatly increased by such treatment. Emphasis is primarily on timber for roadways and airways. Forest products research records no. 3. Wood preservation series no. 1.

UTILIZATION OF WOOD WASTE. U. S. Office of Technical Services. Nov 1949. 8p Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. Mimeo: $.25. PB 99150
1. Wood waste - Utilization 2. TAS 32.32r.

WOOD WASTE UTILIZATION, REPORT OF FIELD SURVEY OF MANUFACTURING WASTE IN NEW ENGLAND, SPONSORED BY FEDERAL RESERVE BANK OF BOSTON. Northeastern Wood Utilization Council, New Haven, Conn. Nov 1949. 25p map, tables Available from Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn. $1.00. PB 99242
A report of a field survey of manufacturing waste in New England, sponsored by the Federal Reserve Bank of Boston. The object was to find where there were sufficient concentrations of wood waste to justify local utilization plants of some sort. The survey was confined to permanent sawmills and to wood-using plants. The possible uses for wood waste suggested in the report reflect the investigations carried out by the Council in this country and in Europe. Bulletin no. 20.

ADAPTATION OF DIESEL ENGINES TO PRODUCE GAS. U. S. Office of Technical Services. Nov 1949. 9p Available from U. S. Office of Technical Services, Dept. of Commerce, Washington 25, D. C. $.25. PB 99264
1. Gas, Producer 2. Gas, Producer - Bibliography 3. Engines, Diesel - Fuel system 4. Adaptation of Diesel engines to producer gas 5. OTS IRDD 3516.23.

BRIDGE 4" OIL DIFFUSION PUMP. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1947. 20p drawings only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.75. PB 99126
Pump diagram. MDDC 943.

BRIDGE 8" VACUUM PUMP. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1947. 50p drawings only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $1.15. PB 99127
Pump diagram. MDDC 942.

AUSFLUSSVERSUCHE AN DUESEN MIT KALTEM WASSER (COLD WATER FLOW TESTS ON INJECTORS OF SMALL INSIDE DIAMETERS), by Dr. Kuettner. Dresden. Technische Hochschule. Maschinenlaboratorium. Nov 1940. 145f photos, diagr, graphs (Text in German and English) Mi $5.75, Enl Pr $20.00. PB 99219
Tests results on injectors of different design having ID's between 1 mm and 3 mm are given. The effect of the discharge pressure and of the design of the injector on the flow coefficient is studied using cold water and interchangeable injectors of brass as well as of transparent material. Some of these injectors varied from standard designs in their lack of rounded-off entrance edges. Whirl type and shower head type injectors are also studied. This paper permits conclusions as to flow volumes, flow coefficients, and jet shapes associated with injectors of small ID when near-steady flow of a liquid of known viscosity and density is assumed. Translated by North American Aviation, Inc. under Contract W-33-038-ac-14191, Project MX 770.

SPRING SHOCK MOUNT DEVELOPMENT. POLYTECHNIC INSTITUTE OF BROOKLYN. DEPT. OF MECHANICAL ENGINEERING. FINAL REPORT, CONTRACT NO. W-36-039-sc-32289. Apr 1949. 137p drawings, graphs, tables Mi $5.00, Ph $17.50. PB 99308
1. Mountings, Shock 2. Electronic equipment - Packaging 3. Springs, Spiral 4. Springs, Belleville 5. SIG Contract W-36-039-sc-32289.

WILLIAMS 6" DIFFUSION PUMP. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1947. 20p drawings only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.60. PB 99125
Diagram of 6" Diffusion Pump. MDDC 960.

WILSON 4" PUMP VALVE. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1947. 12p drawings only Available from U. S. Atomic Energy Commission, Oak Ridge Tenn. $.30. PB 99124
Diagram of 4" Diffusion Pump. MDDC 961.

MEDICAL RESEARCH AND PRACTICE

ANALYSIS OF DUST AND FUME HAZARDS IN A BERYLLIUM PLANT, by Sidney Laskin and others. Sep 1947. 19p tables Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 96972

A survey has been made of industrial health conditions of a beryllium plant in which many instances of beryllium poisoning have occurred. The survey included an analysis of the dust and fume data taken under operating conditions at the plant. Of the three areas surveyed, those of the beryllium fluoride and beryllium metal furnaces showed the most hazardous concentrations of beryllium and fluoride. Most arresting was the disproportionately high fluoride concentration near the fluoride furnace. Another problem investigated was that of beryl ores suspected of containing radioactive impurities. This degree of activity represents a definite thoron or radon hazard, and suggests the possibility that uranium or other radioactive materials may act synergistically or as predisposing agents in beryllium poisoning. MDDC 1355.

MISCELLANEOUS TESTS AND MINOR INVESTIGATIONS. TOXIC AND PHARMACOLOGICAL ACTION OF THE FURFURYL ALCOHOLS, by John E. Gajewski, William R. Alsdorf, Jr., and R. B. Tillman. U. S. Naval Medical Research Institute, Bethesda, Md. Jun 1949. 10p tables Mi $1.25, Ph $1.25. PB 99052

Both furfuryl and tetrahydrofurfuryl alcohols were injected intravenously and administered orally and their toxicity determined for rats, rabbits and dogs. References and tables attached. NMRI Proj NM 011015 R9.

PHARMACOLOGY AND TOXICOLOGY, PT. III, BY FRITZ EICHHOLTZ AND OTHERS. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE 1939-1946). 1948. 297p tables (Text in German) Mi $9.00, Ph $37.50, Mimeo: $3.00. PB 99209

1. Pharmacology - Germany 2. Toxicology - Germany.

Title page in English. Table of contents in English, French and German. For pt. 1 see PB 95674; for pt. 2 see PB 85047.

PRELIMINARY STUDIES OF THE TOXICITY OF THORIUM, by H. Ackerman and others. U. S. Atomic Energy Commission. Feb 1948. 26p graphs, tables Limited supply mimeo $.15. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.15. PB 99335

Contains the following sections: toxicity following intraperitoneal administration of thorium nitrate in white rats; the acute and chronic toxicity of thorium salts in rats following tracheal administration; preliminary studies of the toxicity of thorium nitrate when fed to white rats; and the distribution and excretion of thorium sulfate using UX_1 (Th-234) as a tracer. AECD 2283.

VALUE OF PENICILLIN IN TREATMENT OF HS BURNS OF RABBIT EYES, by Francis Heed Adler, Irving H. Leopold, Willard H. Steele and Alan S. Crandall. Pennsylvania. University. Dept. of Ophthalmology. Jan 1943. 6p tables Mi $1.25, Ph $1.25. PB 99263

1. Eyes - Mustard gas effects 2. Eyes - Poison gas effects 3. Penicillin - Therapeutic use 4. CMR CTGC 24.
Contract no. OEMcmr-9. Report no. 24. Page 1 of this report will not reproduce well.

METALS AND METAL PRODUCTS

AKTENNETIZ ZUR VERZINNUNG VON ALUMINIUMDRAHT MIT ULTRASCHALL, by R. Schöfer. Nov 1946. 3f drawing (Text in German) Mi $1.25, Enl Pr $2.50.
PB 98930

1. Wire, Aluminum - Electroplating - Germany 2. Micro BIOS FD 1069/49, Frames 1-3.

AMINO ACID COMPOSITION OF MEAT AND OTHER FOODS. 1. ARGININE, HISTIDINE, ISOLEUCINE, LEUCINE, YSINE, METHIONINE, PHENYLAMANINE, THREONINE, TRYPTOPHAN AND VALINE, by Carl M. Lyman and K. A. Kulken. Texas. Agricultural Experiment Station, College Station, Texas. Jan 1949. 30p tables Mi $2.00, Ph $3.75. PB 98944

1. Meat - Amino acid content 2. Amino acids - Determination.
Bulletin 708.

ARCHIV FÜR METALLKUNDE. Sep 1947. 100p drawings, graphs, tables Mi $4.25, Ph $12.50. PB 98676

1. Lead-bronze alloys - Germany 2. Bearings, Lead-bronze - Electrolytic production - Germany 3. Bearings, Lead-bronze - Castings - Germany 4. Metals, Bearing - Hardness tests - Germany 5. Metals, Bearing - Temperature measurements - Germany 6. Bushings, Lead-bronze - Germany 7. Bearings, Sliding - Materials 8. Metals, Bearing - Lead - Russia 9. STS 72.

Contains: Verfestigte bleibronzen (Fortified lead bronze alloys), by B. Garre. Über die elektrolytische herstellung von bleibronzelagern (Concerning the electrolytic production of lead-bronze bearings), by A. Beerwald and L. Döhler. Zür metallurgie der bleibronzen für verbundgusslager (Concerning the metallurgy of lead bronzes for compound sliding bearings), by F. Bollenrath. Die wirthschaftliche herstellung von doppelseitig begossenen stahl-bleibronze-lagern (Economic production of steel-lead-bronze bearings coated on both sides by compound casting), by B. Garre. Berücksichtigung von temperaturschwankungen bei der härteprüfung von lagermetallen (Allowing for temperature fluctuations in the hardness testing of bearing metals), by V. Schneider. Lagerschalen aus verbundguss (Bearing bushings made of compound castings), by A. Schimmel. Neuzeitliche gleitlagerwerkstoffe und ihre verwendung (Modern materials for sliding bearings and their application), by O. H. Hummell. Sowjetrussische bleilagermetalle (Soviet-Russian lead bearing metals), by V. Schneider. Translation of Archiv für Metallkunde, Sep 1947.

BASIC DRY CHEMISTRY OF NEPTUNIUM, by S. Fried and N. R. Davidson. Jul 1947. 19p drawings, tables Mi $1.75, Ph $2.50. (Limited supply mimeo $.10.) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10.
PB 96968

A description of the microtechniques used in the preparation of neptunium compounds is given. Neptunium dioxide and sodium neptunyl acetate have been prepar-

ed and identified. A tabular survey of the dry chemistry of U, Np, and Pu is given, and the relationship between the stability of the different oxidation states in solution and in dry compounds is discussed. MDDC 1332.

BEHAVIOR OF HARD METAL ALLOYS TO ANODIC OXIDATION, by Drs. Dawihl and Rix. Studiengesellschaft Hartmetall, Berlin. 1939. 4f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96830

1. Anodic oxidation - Germany 2. Metals, Hard - Oxidation - Germany 3. Chromium carbide - Oxidation - Germany 4. Titanium alloys - Oxidation - Germany 5. Micro BIOS FD 3805/47, Frames 1-3.

Abstracts available as PB 96830s. 1p. Mi $1.25, Ph $1.25.

CATALOGUE OF FABRICATION AND ERECTION OF PIPES. Allgemeine Rohrleitung Aktiengesellschaft, Düsseldorf, Ger. 1941. 80f photos, drawings, graphs, tables (Text in German) Mi $3.50, Enl Pr $11.25. PB 99312

1. Pipe - Germany 2. Micro BIOS FD 647/49, Frames 1-79.

CHEMISTRY OF GALLIUM. PROGRESS REPORT, DEC 1, 1947-FEB 1, 1948, by Warren C. Johnson. Chicago. University. Dept. of Chemistry. Feb 1948. 10p tables Mi $1.25, Ph $1.25. PB 98618

The preparation and chemical properties of $GaCl_2$, NH_4GaCl_4 and $KGaCl_4$ have been investigated. It was found that $GaCl_2$ can be prepared by a reaction of HCl with gallium metal. The product thus formed can be readily separated from unreacted gallium by extraction with benzene. $KGaCl_4$ is prepared by evaporation of a HCl solution containing one equivalent of gallium ion, one of potassium ion and excess ammonium ion.

COMPARISON OF SINTERED AND CAST TIPS OF FE + 50% W_2C (SINTERPLÄTTCHEN AUS FE + 50% W_2C ZUM VERGLEICH MIT DEM SCHMELZPROBEN), by Dawihl and Schmidt. Studiengesellschaft Hartmetall, Berlin. Jul 1941. 2f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96844

1. Iron-tungsten-carbon alloys - Germany 2. Micro BIOS FD 3892/47, Frame 1

Abstracts available as PB 96844s. 1p. Mi $1.25, Ph $1.25.

CONVERSION OF BORON CARBIDE WITH METALS (ÜBER EINE UMSETZUNG VON BORKARBID MIT METALLEN). Studiengesellschaft Hartmetall, Berlin. 1939. 4f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96826

1. Boron carbide - Sintering - Germany 2. Micro BIOS FD 3806/47, Frames 1-3

Abstracts available as PB 96826s. 1p. Mi $1.25, Ph $1.25.

DECARBURISATION OF TUNGSTEN CARBIDE, TITANIUM CARBIDE, HARD METALS N AND XX BY HIGH TEMPERATURE, SINTERING AND WITH DIFFERENT EMBEDDING MATERIALS. Studiengesellschaft Hartmetall, Berlin. 1938-1939. 15f (Text in German) Mi $1.75, Enl Pr $3.75. PB 96838

1. Tungsten carbides - Germany 2. Titanium carbides - Germany 3. Metals, Hard - Sintering - Germany 4. Micro BIOS FD 3801/47, Frames 1-13 5. Micro BIOS HEC 11157 6. Micro BIOS HEC 11168.

Abstracts available as PB 96838s. 2p. Mi $1.25, Ph $1.25.

DETERMINATION OF NITROGEN IN HARD METALS. Studiengesellschaft Hartmetall, Berlin. 1938. 7f table (Text in German) Mi $1.25, Enl Pr $2.50. PB 98172

1. Nitrogen - Detection - Germany 2. Metals, Hard - Nitrogen content 3. Titanium carbide - Nitrogen content 4. Micro BIOS FD 3745/47, Frames 1-5 5. BIOS FR 925 LD.

Abstract available as PB 98172s. 1p. Mi $1.25, Ph $1.25.

DETERMINATION OF THE TARNISHING TEMPERATURE OF A POLISHED SPECIMEN OF G1 HARD METALS (BESTIMMUNG DER ANLAUFTEMPERATUR EINES POLIERTEN G 1 HARTMETALLS). Studiengesellschaft Hartmetall, Berlin. 1941. 4f photo (Text in German) Mi $1.25, Enl Pr $2.50. PB 96829

1. Metals, Hard - Temperature tests - Germany 2. G 1 (Metal) 3. Micro BIOS FD 3888/47, Frames 1-3.

Abstracts available as PB 96829s. 1p. Mi $1.25, Ph $1.25.

EFFECT OF OPEN CIRCULAR HOLES ON TENSILE STRENGTH AND ELONGATION OF SHEET SPECIMENS OF SOME ALUMINUM ALLOYS by H. N. Hill and R. S. Barker. Aluminum Company of America. Aluminum Research Laboratories, New Kensington, Pa. Oct 1949. 40p graphs, tables Mi $2.25, Ph $5.00. PB 99039

Tests were made to determine the relative effect of various patterns of open circular holes on the tensile strength and elongation of 24S-T3, 24S-T81, 24S-T86, 24S-0, Alclad 75S-T6, Alclad 14S-T6, and Alclad 14S-T3 aluminum-alloy sheet specimens having a ratio of hole diameter to thickness of sheet of 3. In practical cases, the reduction in strength resulting from open circular holes in sheet subjected to tension will not exceed about 5 percent for Alclad 14S-T6, Alclad 75S-T6, 24S-T81, and 24S-T86. In the case of 24S-T3, 24S-0, and Alclad 14S-T3, however, strength reductions may be slightly greater than 10 percent. NACA TN 1974.

FERROMAGNETIC RESONANCE IN IRON OXIDES, by G. E. Crouch, Jr., and C. H. Willis. Princeton University. Plastics Laboratory. Mar 1949. 19p graphs Mi $1.75, Ph $2.50. PB 99295

1. Iron oxides - Resonance 2. Ferromagnetism - Research 3. SIG Contract W-36-039-sc-32011 4. PU PL TR 13B.

A summary of this report appeared in Physical review, vol. 75, p. 525, Feb. 15, 1949.

FURTHER EXPERIENCES GAINED IN THE BREAKING DOWN OF HARD METAL SCRAP WITH SODIUM NITRITE (WEITERE ERFAHRUNGEN ÜBER DAS AUFSCHLIESSEN VON HARTMETALLSCHRETT MIT NATRIUMNITRIT). Studiengesellschaft Hartmetall, Berlin. 1941. 3f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96835

1. Scrap metal - Recovery processes - Germany 2. Micro BIOS FD 3894/47, Frame 1.

Abstract available as PB 96835s. 1p. Mi $1.25, Ph $1.25.

GAMMA RAYS FOLLOWING $AU^{198}\beta$ DECAY, by D. Saxon and R. Heller. Jul 1948. 3p graphs Mi $1.25, Ph $1.25. (Limited supply mimeo $.05) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05.) PB 96997

Discusses question of whether the decay of Au-198 is simple or complex; the Au spectrum was rerun with particular care in looking for low energy internal conversion lines from the 0.157 and 0.208 Mev gammas; momentum plot of resulting spectrum is given; it was concluded that the low energy gammas are associated with an impurity; references. AECD 2290.

DIE GEWINNUNG VON VANADIN NEBEN THERMISCHER PHOSPHORSÄURE IN ELECTRO-OFEN. (PRODUCTION OF VANADIUM, ADDITIONAL TO THERMIC PHOSPHORIC ACID IN THE ELECTRIC FURNACE), by H. Ley and H. Kassner. Metallgesellschaft A. G., Frankfurt am Main, Ger. Aug 1944. 11p tables (Text in German) Mi $1.75, Ph $2.50. PB 98591

1. Vanadium - Production 2. Phosphoric acid - Production 3. BIOS HEC 12352 4. Micro BIOS FD 305/48, Frames 238-249.

Negative photostat of enlargement print of Micro BIOS FD 305/48. This report will not reproduce well. Abstract available as PB 98591s. 1p. Mi $1.25, Ph $1.25.

GRAIN STRUCTURE AND SIZE IN TUNGSTEN POWDER. Studiengesellschaft Hartmetall, Berlin. 1939-1941. 6f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96841

1. Metal powders - Physical properties - Germany 2. Tungsten carbides - Germany 3. BIOS FR 925 LD 4. Micro BIOS FD 3891/47, Frames 1-6.

For abstract 1 see PB 96821.

INFLUENCE OF COMPACTING PRESSURE ON POROSITY. Studiengesellschaft Hartmetall, Berlin. Mar 1939. 10f photo (Text in German and English) Mi $1.25, Enl Pr $2.50. PB 96833

1. Metals, Hard - Fabrication - Germany 2. Metals, Hard - Compression - Germany 3. Porosity - Germany 4. Micro BIOS FD 3804/47, Frames 1-7.

Abstract available as PB 96833s. 1p. Mi $1.25, Ph $1.25.

INFLUENCE OF THE SINTERING ATMOSPHERE ON THE CARBON CONTENT OF TUNGSTEN CARBIDE. Studiengesellschaft Hartmetall, Berlin. 1936. 6f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96786

1. Tungsten carbides - Carbon content - Germany 2. Micro BIOS FD 3747/47, Frames 1-6. 3. BIOS FR 925 LD.

Abstract available as PB 96786s. 2p. Mi $1.25, Ph $1.25.

INVESTIGATION OF BONDING BETWEEN METALS AND CERAMICS.I - NICKEL, COBALT, IRON, OR CHROMIUM WITH BORON CARBIDE, by H. J. Hamjian and W. G. Lidman. U. S. Lewis Flight Propulsion Laboratory, Cleveland, Ohio. Sep 1949. 16p photos, drawings Mi $1.75, Ph $2.50. PB 99003

The results of a qualitative investigation of the bonding phenomenon in ceramals after exposure at temperatures above the melting temperature of the metal constituent are presented. Bonding experiments are suggested as a method of indicating suitability of a metal and a ceramic to form a ceramal. The experiments conducted with boron carbide and each of four metals showed that nickel, cobalt, and iron formed a bonding zone between the metal and the ceramic and that chromium showed satisfactory physical wetting characteristics on the ceramic. NACA TN 1948.

VERFAHREN ZUR FORMGEBUNG VON HARTMETALLKÖRPERN OHNE VERSINTERUNG (METHODS OF SHAPING HARD METAL PRESSINGS WITHOUT PRESINTERING). Studiengesellschaft Hartmetall, Berlin. Feb 1936. 5f photo, table (Text in German) Mi $1.25, Enl Pr $2.50. PB 96614

1. Metals, Hard - Fabrication - Germany 2. Micro BIOS FD 3740/47, Frames 1-4

INVESTIGATION OF MECHANICAL PROPERTIES AND PHYSICAL METALLURGY OF AIRCRAFT ALLOYS AT VERY LOW TEMPERATURES. PT. 1: IMPACT AND HARDNESS DATA OF SEVERAL AIRCRAFT METALS AT LOW TEMPERATURES, by Donald A. Shinn. U. S. Air Materiel Command. Engineering Division, Materials Laboratory, Wright Field, Dayton, Ohio. Jan 1948. 56p photos, diagrs, graphs, tables Mi $2.75, Ph $7.50. PB 98635

Discusses Charpy impact and Vickers Hardness tests on certain ferritic and austenitic steels, aluminum base alloys, aluminum bronze, and magnesium thru the temperature range from +20°C to -253°C. Includes report by Ohio State University Research Foundation, Sept 1947. Report no. 10 on Project 287, Contract W-33-ac-15698. AAF T-2 TR 5662. AAF TSEAM M5360.

MODIFICATION OF A DIE FOR LARGE CYLINDRICAL BRIQUETTES OF HARD METAL IN ORDER TO ELIMINATE PRESSING DEFECTS. Studiengesellschaft Hartmetall, Berlin. 1937. 4f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96802

1. Briquettes - Germany 2. Metals, Hard - Extrusion - Germany 3. Micro BIOS FD 3761/47, Frames 1-3 4. BIOS FR 925 LD.

Abstract available as PB 96802s. 1p. Mi $1.25, Ph $2.50.

DAS NEUE UNIVERSAL-SCHNEIDMETALL OSRAM Y (THE NEW CUTTING METAL OSRAM Y), by Schröter. Studiengesellschaft Hartmetall, Berlin. Mar 1933. 6f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96613

1. Osram Y (Trade name) 2. Metals, Hard - Germany 3. Micro BIOS HEC 11,023 4. Micro BIOS FD 3731/47, Frames 1-5.

A NEW SAFE, GRAPHITE MODULIZING ALLOY, by E. T. Myskowsky and R. F. Dunphy. U. S. Naval Research Laboratory, Bellevue, D. C. n.d. 12p photos, graphs, tables Mimeo: $.50. PB 98919

1. Iron - Silicon-magnesium alloys 2. Graphite modulizing alloy.

1/8" STAINLESS STEEL CONTROL CABLE, MODEL NA-55. FATIGUE TESTS, by D. Jensen. North American Aviation, Inc., Los Angeles, Calif. May 1940. 4f photos Mi $1.25, Enl Pr $2.50. PB 98462

1. Cables, Control - Tests

PAINTS FOR ANODIZED LIGHT ALLOYS, by H. Gichmann. Apr 1937. 11f photos, table Mi $1.75, Enl Pr $3.75. PB 98933

1. Coatings, Anodic - Tests - Germany 2. Alloys, Light metal - Corrosion prevention - Germany 3. RTP/TIB T3424 4. ZWB 430 5. Micro BIOS FD 5340/47, Frames 1-11.

Gt. Brit. Ministry of Supply. Translation TP A 3.

REPORTS ON A VISIT TO MONTANWERK WALTER, TÜBINGEN, GER. Osram G.m.b.H., Berlin. 1932. 15f diagrs (Text in German) Mi $1.75, Enl Pr $3.75. PB 96795

1. Metals, Hard - Production - Germany 2. Montanwerke Walter, Tübingen, Ger. 3. Krupp, Friedrich, A. G., Essen, Ger. 4. Micro BIOS FD 3726/47, Frames 1-15 5. BIOS FR 925 LD.

Abstract available as PB 96795s. 1p. Mi $1.25, Ph $1.25.

REPORT ON THE CONTROL OF SILUMIN CHARGES. Metallgesellschaft A. G., Frankfurt, Ger. 1935-1937. 18f (Text in German) Mi $1.75, Enl Pr $3.75. PB 96815

1. Silumin - Tests - Germany 2. Silumin-gamma - Tests - Germany 3. Micro BIOS FD 4935/47, Frames 61-75.

Abstract available as PB 96815s. 3p. Mi $1.25, Ph $1.25.

REPORTS ON VISITS TO WIDIA WORKS, KRUPP AND STUDIENGESELLSCHAFT. Studiengesellschaft Hartmetall, Berlin. 1932-1935. 60f (Text in German) Mi $2.75, Enl Pr $8.75. PB 96789

1. Metals, Hard - Research - Germany 2. Krupp, Friedrich A. G., Essen, Ger. 3. Krupp, Friedrich A. G., Widia Fabrik, Berlin 4. Micro BIOS FD 3725/47, Frames 1-60.

Abstract available as PB 96789s. 1p. Mi $1.25, Ph $1.25.

REPRODUCIBILITY OF HUMIDITY EXPOSURE TESTS, by Lewis E. Michael. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Apr 1948. 61p photos, graphs, tables Mi $3.00, Ph $8.75. PB 98986

1. Steel - Corrosion prevention 2. Panels, Steel - Corrosion prevention 3. AAF TR 5690.

This report contains the results of humidity tests on steel panels prepared with 15 types of surface finishes. Each experiment consisted of a group of 10 panels representing one surface condition.

SEPARATION OF CORUNDUM BY CENTRIFUGAL METHODS. Studiengesellschaft Hartmetall, Berlin. 1937. 3f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96800

1. Corundum - Separation - Germany 2. Micro BIOS FD 3759/47, Frames 1-3 3. BIOS FR 925 LD.

Abstract available as PB 96800s. 1p. Mi $1.25, Ph $1.25.

SPECTROCHEMICAL ANALYSIS OF SODIUM IN SILUMIN, BY DR. F. WOLBANK AND E. FISCHER. REFINING OF SILUMIN, by Dr. F. Wolbank and Schulz. Metallgesellschaft A. G., Frankfurt, Ger. 1942-1943. 16f photos, diagrs (Text in German) Mi $1.75, Enl Pr $3.75. PB 96837

1. Silumin - Spectrochemical analysis - Germany 2. Silumin - Refining - Germany 3. Micro BIOS FD 282/48, Frames 1-15.

Abstract available as PB 96837s. 2p. Mi $1.25, Ph $1.25.

STRUCTURE OF G 1 PRODUCTION LOTS OF LOW HARDNESS AND POOR CUTTING PERFORMANCE (GEFÜGEPRÜFUNG AN G 1 BETRIEBSPOSTEN MIT GERINGE HÄRTE UND SCHLECHTER SCHNEIDLEISTUNG). Studiengesellschaft Hartmetall, Berlin. Aug 1941. 16f tables (Text in German) Mi $1.75, Ph $3.75. PB 96836

1. Metals, Hard - Structural tests - Germany 2. Micro BIOS FD 3893/47, Frames 1-15.

Abstract available as PB 96836s. 2p. Mi $1.25, Ph $1.25.

TESTING SURFACE TREATMENT OF MAGNESIUM HELIARC WELDS, by Mike Raskin. Northrop Aircraft, Inc., Hawthrone, Calif. May 1941. 11f photos Mi $1.75, Enl Pr $3.75. PB 98436

1. Magnesium - Welding 2. Welding, Arc - Tests 3. Magnesium - Welds - Corrosion tests 4. Welds - Coatings - Tests.

UEBER DEN EINFLUSS DER KARBURIERUNGSTEMPERATUR DES WOLFRAMS AUF DIE EIGENSCHAFTEN DES DAMIT HERGESTELLTEN HARTMETALLS H. (INFLUENCE OF CARBURISING TEMPERATURE OF TUNGSTEN ON THE PROPERTIES OF HARD METAL H). Studiengesellschaft Hartmetall, Berlin. 1936. 5f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96606

1. Metals, Hard - Physical properties - Germany 2. Tungsten - Tests - Germany 3. H (Hard metal) 4. Micro BIOS HEC 11079, Frames 1-5 5. Micro BIOS FD 3653/47, Frames 1-5.

VAKUUMSINTERUNG VON WIDIA X. (NOTE ON CUTTING PERFORMANCE OF WIDIA X HARD METAL AS COMPARED WITH ORIGINAL WIDIA X). Studiengesellschaft Hartmetall, Berlin. 1935. 3f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96609

1. Metals, Hard - Germany 2. Widia X (Trade name) 3. Micro BIOS FD 3729/47, Frames 1-3 4. Micro BIOS HEC 11020, Frames 1-3.

VORANSCHLAG ÜBER DIE SELBSTKOSTEN BEI DER HERSTELLUNG VON 200-300 KG HARTMETALLPULVER EINSCHLIESSLICH EINRICHTUNG ZUR PRÜFUNG (ESTIMATE OF COST PRICE FOR THE MANUFACTURE OF 200-300 KG OF HARD-METAL POWDER INCLUDING ADJUSTMENT FOR TESTING). Studiengesellschaft Hartmetall, Berlin. Apr 1937. 4f table (Text in German) Mi $1.25, Enl Pr $2.50. PB 96598

1 Metal powders - Production - Cost - Germany 2. Micro BIOS FD 3763/47, Frames 1-4.

WEARING TESTS OF HARD CHROMIUM COATINGS (VERSCHLEISSPRÜFUNG VON HARTCHROMSCHICHTEN), by H. Wahl and K. Gebauer. Feb 1948. 43p photos, drawings, graphs, tables Mi $2.00, Ph $6.25. PB 98597

1. Coatings, Chromium 2. STS 71.

General considerations, gives a survey of previous investigations. Translation from Metalloberfläche vol. 2, p. 25-37, Feb 1948.

ZUSAMMENSETZUNG DER GEBRUCHLICHTEN HARTMETALL SORTEN DIE VON KRUPP BZW. STUD GELIEFERT WERDEN. (COLLECTION OF FRACTURED METALS FROM KRUPP SUBMITTED FOR STUDY), by Dr. Dawihl and others. Studiengesellschaft Hartmetall, Berlin. May 1947. 2f table (Text in German) Mi $1.25, Enl Pr $2.50. PB 96596

1. Krupp, Friedrich, A. G., Essen, Ger. 2. Metals - Tests - Germany 3. Micro BIOS FD 3766/47, Frames 1-2 4. Micro BIOS HEC, 11093, Frames 1-2.

MINERALS AND MINERAL PRODUCTS

BELASTNINGSFÖRSÖK PA LERA (LOADING TESTS ON CLAY), by Sten Odenstad. Sweden. Statens Kommittee för Byggnadsforskning. 1947. 30p drawings, graphs (Text in Swedish and English) Mi $2.00, Ph $3.75. PB 98997

1. Clay - Tests - Sweden.

Rapport nr. 14.

FLUE DUST AS HEAT INSULATING MATERIAL (WÄRMESCHUTZMASSEN MIT FLUGASCHE), by W. Schenker. I. G. Farbenindustrie A. G., Oppau, Ger. 1941. 7f graphs, tables (Text in German) Mi $1.25, Enl Pr $2.50. PB 96814
1. Insulating materials - Germany 2. Ashes - Uses - Germany 3. Micro BIOS FD 2866/46, Item 99.
Abstract in English.

GRADING OF AGGREGATES AND WORKABILITY OF CONCRETE, BY W. H. GLANVILLE AND OTHERS. SECOND EDITION. May 1947. 60p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.55. PB 92699
1. Concretes - Mix proportions - Gt. Brit. 2. DSIR RR TP 5.

MANUFACTURE OF DIAMOND POWDER OF VARIOUS GRAIN SIZE BY CENTRIFUGAL METHODS (BERICHT ÜBER DIE HERSTELLUNG VON DIAMANTKÖRNUNGEN NACH DEM ZENTRIFUGIER-VERFAHREN), by Dr. Dawihl. Studiengesellschaft Hartmetall, Berlin. May 1935. 35f photos, tables (Text in German) Mi $2.25, Enl Pr $6.25. PB 96791
1. Diamond powders - Manufacture - Germany 2. BIOS FR 925 LD 3. BIOS/DOCS/2012/2984 4. BIOS HEC 11041 5. Micro BIOS FD 3734/47, Frames 1-34.
Abstract in English

PETROGRAPHY, PT. I: MINERALS, BY KARL HERMANN SCHEUMANN. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE 1939-1946). 1948. 249p (Text in German) Mi $9.00, Ph $31.25, Mimeo: $3.00. PB 99206
Title page in English. Preface and table of contents in English, French and German. For pt. 2 see PB 99205.

PETROGRAPHY, PT. II: MINERALS AND ORES, BY KARL HERMANN SCHEUMANN AND OTHERS. U. S. FIELD INFORMATION AGENCY. TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE, 1939-1946). 1948. 158p (Text in German) Mi $6.00, Ph $20.00, Mimeo: $3.00. PB 99205
Title page in English. Table of contents in English, German and French. For pt. 1 see PB 99206.

PREPARATION OF DENSE MAGNETITE SAMPLES FOR ELECTRICAL AMD MAGNETIC MEASUREMENTS, by D. W. Beaumont and E. T. Rock. Massachusetts Institute of Technology. Laboratory of Insulation Research, Cambridge, Mass. Sep 1947. 21p diagrs, tables Mi $2.00, Ph $3.75. PB 99148
The development of a technique for preparing dense magnetite in a desirable geometric form by casting molten magnetite in long cylindrical molds is described. It is desired to produce magnetite samples of several compositions ranging from that of $Fe_3\ 0_4$ to the solubility limit of oxygen in magnetite at a pressure of one atmosphere. This can be accomplished by quenching molten oxide of the composition desired in the magnetite or by forming solid Fe_30_4 from liquid oxide of the same composition. MIT LIR TR6.

PRODUCTION OF CERAMIC HIGH DIELECTRIC CONSTANT TEST SPECIMENS, BY HANS THURNAUER AND ALLEN N. SALOMON. AMERICAN LAVA CORPORATION, CHATTANOOGA, TENN. FINAL REPORT, CONTRACT W-36-039-SC-32371.

Apr 1948. 94p drawings, graphs, tables Mi $4.25, Ph $12.50. PB 99322

This report, in describing the preparation of specimens, points out those compositions which can and those which cannot be made under commercial production methods. A side development of the project was that of a wire screen stenciling process developed for the application of metallic silver electrode patterns to the test specimens. This stenciling process is now being used in the production of intricate glazed designs and trademarks on steotite ware.

SCHLEIFVERSUCHE MIT DEFINIERTEN KÖRNUNGEN. (POLISHING TESTS WITH POWDERS OF KNOWN GRAIN SIZE). Studiengesellschaft Hartmetall, Berlin. 1935. 9f (Text in German) Mi $1.25, Enl Pr $2.50. PB 96605

1. Polishing materials - Germany 2. Micro BIOS FD 3736/47, Frames 1-9. Abstract in English.

UNTERSUCHUNGEN ÜBER TECHNISCH WICHTIGE BEAKTIONEN IM SYSTEM TITANOXYD-KOHLE-STICKSTOFF. Studiengesellschaft Hartmetall, Berlin. Mar 1937. 24f graphs, tables (Text in German) Mi $2.00, Enl Pr $5.00. PB 96788

1. Titanium oxides - Germany 2. Carbon compounds - Germany 3. Nitrogen compounds - Germany 4. Micro BIOS FD 3762/47, Frames 1-23.

ORDNANCE AND ACCESSORIES

ERREICHTE ZERSPANNENGSWERTE BEIM SCHRUPPEN VON SPRENGGRANATEN 8.8CM (CUTTING COEFFICIENTS OBTAINED WHEN ROUGHING 8.8CM. HIGH EXPLOSIVE SHELLS) ZUSAMMENSTELLUNG DER HARTMETALLWERKZEUGE FÜR DIE SPANABHEBENDE BEARBEITUNG VON SPRENGGRANATEN 8.8CM (COMPILATION OF HARD-METAL TOOLS FOR MACHINING) MESSUNG DER OBERFLÄCHENGÜTE AN GEWEHRLÄUFEN (TESTING THE SURFACE FINISH OF RIFLE BARRELS) BESUCH IM HERRESWAFFEN-AMT AM 25.11.40 (VISIT TO ARMY ORDNANCE BRANCH ON 25.11.40), by Dr. Dawihl. Studiengesellschaft Hartmetall, Berlin. 1940-1941. 27f graphs (Text in German) Mi $2.00, Enl Pr $5.00. PB 96842

1. Tools, Machine - Germany 2. Projectiles, High explosive - Germany 3. Rifles - Tests - Germany 4. BIOS FR 925 LD 5. Micro BIOS HEC 11252 6. Micro BIOS HEC 11253 7. Micro BIOS HEC 11263 8. Micro BIOS HEC 11314 9. Micro BIOS DOC 2012/2984 10. Micro BIOS FD 3890/47, Frames 1-26. Abstract in English.

FLAME STABILIZATION AND PROPAGATION IN HIGH-VELOCITY GAS STREAMS, by A. C. Scurlock. Massachusetts Institute of Technology. Fuels Research Laboratory. May 1948. 152p photos, diagrs, graphs, tables Mi $6.00, Ph $20.00. PB 98949

A parcel of unburned gas before entering the flame front has a small velocity component normal to the chamber axis, and away from the flame front. Visual observations of flames stabilized on simple bluff objects indicate that no classical Karman vortex trail is present during combustion; the flame propagation velocity is increased over the laminar flame propagation velocity. Propagation of flame downstream of stabilizers of differing shape is generally the same. Flame velocity increases with distance downstream from the stabilizer. Heating and cooling the stabilizer greatly influences the stability limits. Stability limits are unaffected by

chamber width. Increasing turbulence intensity decreases stability limits. Meteor report no. 19. Operating under Bureau of Ordnance Contract NOrd 9661 with the Division Industrial Cooperation on Technical Tasks for the Bureau of Ordnance and the Bureau of Aeronautics of the Navy Department.

UEBER EINE ABÄNDERUNG DER SCHNEIDENFORM AN SCHRUPPSMEISELN BEIM DREHEN VON GRANATEN (CHANGING THE CUTTING ANGLE OF FLAKING CHISELS WHEN TURNING GRENADES). Studiengesellschaft Hartmetall, Berlin. Apr 1937. 4f Mi $1.25, Enl Pr $2.50. PB 96602
1. Gernades - Manufacture - Germany 2. Micro BIOS FD 3764/47, Frames 1-3.

PACKING AND PACKAGING

COMPARATIVE TEST OF BAG, NURSE'S FLYING, CLOTHING, TYPE B-5, REDESIGNED, WITH BAG, FLYING, CLOTHING, TYPE B-4, by James E. Colburn. U. S. Air Proving Ground, Eglin Air Force Base, Florida. May 1949. 18p photos Mi $1.75, Ph $2.50. PB 99070
1. Bags, Clothing - Tests 2. B-5 (Clothing bag) 3. B-4 (Clothing bag) 4. APGC Proj 34863-5.

OPERATIONAL SUITABILITY TEST OF CONTAINER, FLUID, SELF-HEATING, 2-GALLON, by James E. Colburn. U. S. Air Proving Ground, Eglin Air Force Base, Florida. Oct 1949. 19p photos Mi $1.75, Ph $2.50. PB 99223
1. APGC Proj 34927-5.
MCRE (MCREXD) /JAF/prc Mar 31, 1949.

VACUUM PACKING SLEEPING BAGS, by Norman K. Hanselman. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Aug 1949. 13p photos Mi $1.75, Ph $2.50. PB 99090
The sleeping bags are packed in electronically welded plastic containers. The package can be molded into desired shape and reduces the volume by approximately 40 percent. AAF TSEAA MR 670-22L.

PHOTOGRAPHIC AND OPTICAL GOODS

AUXILIARY TELESCOPE MARK I (OPTICAL EQUIPMENT) SKETCH LIST 54819 WITH DRAWINGS LISTED: BINCCULAR MARK 7, BINOCULAR MARK 7 MOD. 2, TELESCOPE MARK 30, DYNAMETER MARK 2. U. S. Naval Gun Factory, Washington, D. C. Jun 1928. 47p drawings Mi $2.50, Ph $6.25. PB 99386
1. Telescopes, Auxiliary - Design 2. Binoculars - Design 3. Dynameters - Design 4. Mark 1 (Telescope) 5. Mark 7 (Binoculars) 6. Mark 30 (Telescope) 7. Mark 2 (Dynameter).

CAMERA SYNCHRONIZER, DESIGNED, by G. E. Witham. U. S. Atomic Energy Commission, Oak Ridge, Tenn. May 1940. 4p drawing only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.15. PB 99135
Circuit diagram of instrument. MDDC 932.

EVALUATION OF GERMAN KLEIN AUTOGRAPH, by Frank A. McFarland. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Nov 1948. 8p photo, table Mi $1.25, Ph $1.25. PB 99467

This report is an evaluation of the Klein Autograph, Serial No. 65943, Engineer Research and Development Laboratories Register No. 3649, an item of captured German equipment manufactured by Zeiss Aerotopograph, Jena, Germany. The Klein Autograph is a stereoscopic instrument designed for use in the evaluation of close-range, terrestrial, stereoscopic photography taken with a specially designed, fixed base, stereoscopic camera or with a phototheodolite. Project 8-35-01-001. ERDL 1084.

PRODUCTION OF THE INFRARED TRANSMITTING THALLIUM HALIDE CRYSTALS, by P. C. Botzenmayer, Jr., and J. M. Ashcroft. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Oct 1948. 48p photos, drawings, graphs, tables Mi $2.50, Ph $6.75. PB 99474

A report covering an investigation of methods for the production of large, single thallium halide crystals for use in infrared optical systems. Project 8-23-02-002. ERDL 1076.

PRODUCTION TESTING OF LARGE APERTURE PARABOLOIDAL MIRRORS, by Noel W. Scott and Myron W. Klein. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Sep 1947. 22p photo, drawings Mi $2.00, Ph $3.75. PB 99476

Report describes a photometric technique and apparatus for the rapid production testing of large aperture paraboloidal mirrors to determine the ability of such a mirror to concentrate incident radiation at its focus. Project 8-23-02-006 (XR 782). ERDL 1013.

SILICON MONOXIDE PROTECTED FRONT-SURFACE MIRRORS, by Georg H. Hass and Noel W. Scott. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Oct 1947. 32p drawing, graphs, tables Mi $2.25, Ph $5.00. PB 99473

Report covers studies of the structure and properties of evaporated thin films of aluminum and silver, and describes a simple, high-vacuum evaporation process for producing high-reflecting front-surface mirrors with durable protective films of silicon monoxide. Project 8-23-02-002 XR 750. ERDL 1015.

TWO-STEP RECTIFICATION OF HIGH OBLIQUE AERIAL PHOTOGRAPHS, by Frank A. McFarland. U. S. Army. Corps of Engineers. Engineer Research and Development Laboratories. Dec 1947. 21p photo, drawings, graphs, tables Mi $2.00, Ph $3.75. PB 99468

This report covers an investigation of the rectification of high oblique aerial photographs in two steps for the purpose of making an evaluation of this method of rectification in comparison with the two-step method. Project 8-35-03-001 (MP 488). ERDL 1020.

General

BERICHT ÜBER UNTERSUCHUNGEN ZUR AUSGEBILDETEN TURBULENZ. (REPORT ON INVESTIGATION OF DEVELOPED TURBULENCE), by L. Prandtl. U. S. National Advisory Committee for Aeronautics. Sep 1949. 7p diagrs Mi $1.25, Ph $1.25. PB 98908

Assumptions leading to the empirical Blasius law for the resistance of smooth pipes to fluid flow are generalized and expressed in such a way as to furnish a velocity distribution for any empirical resistance law. The method becomes applicable to arbitrarily high Reynolds numbers. The concept of the mixing length is introduced in connection with the Boussinesq formula for turbulent shear. Translation from Zeitschrift für angewandte mathematik und mechanik vol. 5, no. 2, Apr 1925. NACA TM 1231.

ENERGY SPECTRUM OF THE DELAYED NEUTRONS FROM O^{17}, by Evans Hayward. U. S. Atomic Energy Commission. Oct 1948. 11p drawing, graphs Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99364

Experimental determination from the ranges of the knock-on protons in a hydrogen-filled cloud chamber; procedure and data. AECD 2379.

EXPERIMENTS ON STABILITY OF BUNSENBURNER FLAMES FOR TURBULENT FLOW, by Lowell M. Bollinger and David T. Williams. U. S. Flight Propulsion Research Laboratory, Cleveland, Ohio. 1948. 9p photos, drawing, graphs Available from Superintendent of Documents, Govt. Printing Office, Washington 25, D. C. $.10. PB 98977

Fuel-air ratio, tube diameter, and Reynolds number were the primary variables. The velocity gradient at the burner wall is a satisfactory variable for correlating the fuel-air fuel required for blow-off of seated flames for fuel-air ratios of less than 15 percent. NACA 913.

LONGITUDINAL VIBRATIONS OF BARS, by G. S. Shapiro. 1946. 37p graphs, tables Mi $2.25, Ph $5.00. PB 99092

The paper presented, gives further analysis of the one-dimensional problem for bars not obeying Hooke's law. Certain methods of solving boundary value problems of quasi-linear hyperbolic equations were used. Translated from Prikladnaia matematika i mekhanika, 10, 597-616, 1946. Contract N7onr-358 T.O.I. NR-041-032.

MULTIPLICATIVE SYSTEMS IN SEVERAL VARIABLES, III, by C. Everett and S. Ulam. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Oct 1948. 38p Limited supply mimeo $.20. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.20. PB 99367

Continuation of the series (see AECD-2164(LADC-534) and AECD-2165(LADC-533)) developing the probability theory of systems of particles. Continuation of AECD 2164(MDDC LACD 534) and AECD 2165(MDDC LACD 533). AECD 2532.

NOMOGRAPHIC CHARTS FOR NUCLEAR REACTIONS, by J. L. McKibben. U. S. Atomic Energy Commission, Oak Ridge, Tenn. n.d. 41p drawings Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $1.25. PB 99132

Charts relating neutron energy, laboratory or center of gravity angle, and bombarding energy given for Li 7(p,n), D(D,n), and C^{12}(D,n) reactions; accompanying explanation. MDDC 223.

PRINCIPLE OF LIMITING STRESS, by S. M Feinberg. 1948. 19p Mi $1.75, Ph $2.50. PB 99093

A modification of this method leads to the principle of limiting stress, by means of which the ultimate strength and the state of plastic flow of a body may be determined without making use of any special stress-strain hypothesis. Translation no. 5. A11 T5/12. Translated from Prikladnaia matematika i mekhanika, 12, 63-68, 1948. Contract N7onr-358 NR-041-032.

PRECAUTIONS IN INDUSTRIAL USES OF RADIOACTIVE ISOTOPES, by G. H. Guest. National Research Council of Canada. Atomic Energy Project, Chalk River, Ontario. n.d. 6p drawings, tables Mi $1.25, Ph $1.25. PB 98964

Alpha, beta and gamma radiations are considered. Several isotopes are tabulated with their radioactive characteristics. Industrial uses, applications, hazards, precautions, equipment and test methods are outlined. NRCC 1982.

QUANTITATIVE SPECTROGRAPHIC ANALYSIS OF THE RARE EARTH ELEMENTS, by V. A. Fassel and H. A. Wilhelm. Dec 1947. 16p drawing, graphs, tables Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 97007

Spectrographic methods applicable to the determination of small amounts of rare earth impurities in other rare earths are described. The specific examples discussed are the determination of samarium in neodymium and of europium in samarium. The procedures involve the high current d-c arc excitation of rare earth oxide-graphite mixtures. Studies on the variation of the analytical intensity ratio during excitation and the effect of large changes in arc current, per cent graphite, and weight of sample charge on the intensity ratio values are included. MDDC 1512.

ROTARY SEAL, LOWER DRIVE ASSEMBLY. U. S. Atomic Energy Commission. Los Alamos Scientific Laboratory. Mar 1946. 37p drawings only Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.90. PB 99123

A full scale engineering drawing and material list of a drive assembly for a rotary seal is presented; detailed section drawings of principal parts are attached. MDDC 1265.

ROTATIONALLY SYMMETRIC POTENTIAL FLOWS, by Manfred Schäfer and W. Tollmien. Nov 1949. 31p drawings, tables Mi $2.25, Ph $5.00. PB 99306

The theory of the characteristic differential equations for rotationally symmetric potential flows is presented in detail. The theoretical developments are then applied to two practical examples: (1) a diffuser and (2) a nozzle. Translation of Rotationssymmetrische potential-strömungen, from Archiv der Technische Hochschule, Dresden, nr. 44/4 Nov 18, 1940. NACA TM 1244.

STUDIES WITH COLLOIDS CONTAINING RADIOISOTOPES OF YTTRIUM, ZIRCONIUM, COLUMBIUM, AND LANTHANUM, by John W. Gofman. Apr 1948. 8p tables

Mi $1.25, Ph $1.25. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 96993

The present studies are concerned with methods for controlled selective localization of colloids (incorporating radioisotopes) in the liver, spleen, or bone marrow, and with an analysis of some of the factors involved in the phenomenon of localization. Colloids of zirconium, columbium, yttrium, and lanthanum have been chosen for the studies because of the availability of radioisotopes of a wide range of nuclear properties and because of the comparative ease with which controlled variations in chemical structure and particle size of colloids containing these elements may be made. AECD 2057.

A TABLE OF RADIOACTIVE ISOTOPES ARRANGED ACCORDING TO HALF-LIVES, by J. W. Jones and H. M. Clark. Monsante Chemical Co. Clinton Laboratory, Oak Ridge, Tenn. Oct 1937. 114p table Available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. $.40. PB 99119

1. Radioisotopes 2. Half-life measurements 3. Atomic power - Research 4. Table of radioactive isotopes 5. MDDC Mon P 400.

TWO MATRIX METHODS FOR CALCULATING FORCING FUNCTIONS FROM KNOWN RESPONSES, by Bernard Mazelsky and Franklin W. Diederich. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Oct 1949. 36p graphs, tables Mi $2.25, Ph $5.00. PB 99042

Two matrix methods for calculating forcing functions from known responses are presented, one consisting of a numerical evaluation of Duhamel's integral and one consisting of straight-line or parabolic-arc approximations to the forcing function. The methods are suitable for application to many dynamic and some static problems. NACA TN 1965.

Nuclear

COLORIMETRIC DETERMINATION OF URANIUM WITH 1-ASCORBIC ACID, by G. G. Smith, E. F. Orlemann, A. A. Smales, C. D. Rothenberger and W. R. Grimes. U. S. Atomic Energy Commission. Nov 1947. 17p drawings, graphs, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99357

Hexavalent uranium in weak acid solution buffered with acetate ion produces, with a large excess of 1-ascorbic acid, a yellow-brown color whose intensity is a linear function of uranium concentration up to at least 15 mg. U per 50 ml. Procedures for use in colorimetric determination and interfering factors are discussed. AECD 2101.

DEPOSITION OF PURE BORON. II. FLOW METHOD FOR THE DEPOSITION OF BORON ON WIRES, by H. I. Schlesinger and others. Aug 1944. 16p photos, drawings Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 97001

The method has several advantages over those which depend on the reduction of boron halides by hydrogen. The only products of the reaction, aside from boron and hydrogen, are volatile higher hydrides of boron which, on continued heating or the use of slightly higher temperatures, are also converted into boron. Deposits prepared by this method have found application in neutron thermometers and high temperature coefficient resistors. MDDC 1339.

DIMENSIONNEMENT DU MODELE ATOMIQUE (MATHEMATICAL ANALYSIS OF THE ATOM), by P. Dupont. Mar 1947. 44p diagrs, table (Text in French and English) Mi $2.50, Ph $6.25. PB 97761

The dimensioning of the atomic model on basis of the theory of Bohr was calculated. The simplest example is that of hydrogen, which establishes the calculation method and gives the parameters which will be used as references for the corresponding magnitudes of other elements. After the notions of frequency, linear velocity on the path, kinetic, potential and total energy have been established, they are generalized for application to the cases of increasing atomic number N where the presence of the electrons of the various layers destroys the simplicity of the electric field. In atoms with several layers, the calculation of the orbit radii is progressive and a method is given to achieve the purpose by means of calculations utilizing successive approximations.

FISSION OF THORIUM WITH ALPHA PARTICLES, by Amos S. Newton. Apr 1948. 17p graphs, tables Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $10). PB 97006

The fission distribution of fission of thorium with alpha particles of average energy 37.5 Mev was measured by the chemical isolation method; the fission cross section was found to be about 0.6 barn, and the fission threshold was found to be 23 to 24 Mev. AECD 2194.

HEATS OF REACTION OF THE AQUEOUS URANIUM OXIDATION-REDUCTION COUPLES, by B. J. Fontana. Apr 1947. 7p tables Mi $1.25, Ph $1.25. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10) PB 97009

The heats of the $U^{+3} \rightarrow U^{+4}$ and $U^{+3} \triangle UO_2^{+2}$ couples in 0.5 M $HC1O_4$ have been determined through the reaction of U^{+3} with Fe^{+3} giving $H_{298} = +9.3 \pm 0.3$ and -23.7 ± 0.4 kcl/mole, respectively. Reexamination of the aqueous uranium ion oxidation-reduction potentials using the above heats leaves no doubt that the correct values are +0.63 volt for $U^{+3} \rightarrow U^{+4}$ (1 M HC1), and -0.33 volt for $U^{+4} \rightarrow UO_2^{+2}$ (0.5 M HC1). Combination of the results with the heats of formation of $UC1_3$(s) and $UC1_4$(S) obtained from the literature, allows estimates of the various oxidation-reduction heats to be made. MDDC 1603.

HEATS OF VAPORIZATION OF URANIUM HEXAFLUORIDE, by Joseph F. Masi. Sep 1948. 11p diagrs, graphs, tables Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10) PB 97008

Vaporizations were carried out in a heavy-wall, nickel-plated calorimeter and heats of vaporization measured at 7 temperatures for the solid and at 4 temperatures for the liquid; vapor pressure equations and an equation of state are given; thermodynamic properties were calculated and compared with those from the literature. AECD 2288.

NEUTRON-PROTON SCATTERING AT 90 MEV, by Keith Brueckner, Walter Hartsough, Evans Hayward and Wilson M. Powell. U. S. Atomic Energy Commission. Sep 1948. 22p photos, drawings, graphs, tables Limited supply mimeo: $.10 Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99342

Describes the experimental measurement of the angular distribution of protons scattered by neutrons in the neutron beam of the 184-inch Berkeley cyclotron; a Wilson cloud chamber with magnetic field was used; pictures, diagrams, and tabulated data. AECD 2369.

NOTE ON THE PREPARATION OF SMALL DENSE BERYLLIA CRUCIBLES, by Helen B. Barlett. U. S. Atomic Energy Commission. Aug 1945. 4p graphs, tables Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99379

A method for producing small, dense, non-porous crucibles of beryllia at a reasonable firing temperature and without the addition of fluxing agents; data and graphs. AECD 2170.

NUCLEAR PHYSICS AND COSMIC RAYS, PT. I, BY WALTHER BOTHE, SIEGFRIED FLÜGGE AND OTHERS. U. S. FIELD INFORMATION AGENCY, TECHNICAL (FIAT REVIEW OF GERMAN SCIENCE, 1939-1946). 1948. 236p graphs, tables (1 fold) (Text in German) Mi $8.25, Ph $30.00, Mimeo: $3.00. PB 99200

1. Nuclear physics - Germany 2. Cosmic radiation - Germany.

Title page in English. Preface and table of contents in English, German and French. For part 2 see PB 85019.

PACKING FRACTION MEASUREMENTS OF THE HEAVY ELEMENTS, by A. J. Dempster. U. S. Atomic Energy Commission. Argonne National Laboratory. Mar 1948. 3p Limited supply mimeo $.05. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.05. PB 99340

Resolving power of double-focussing mass spectrograph increased ten times; spark source replaced with electron ionization by 1000 volt electrons of vapors; 15,000 volt accelerating potentials; resolutions illustrated by photographs. AECD 1905.

PROBLEMS IN PLANNING FACILITIES FOR RADIOCHEMICAL PROCESS DEVELOPMENT, by A. Carlton Jealous. U. S. Atomic Energy Commission. Oak Ridge National Laboratory. Feb 1949. 18p photos, drawings Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99370

Defines and discusses some problems in the design of installations; describes some structures in use at ORNL; describes some of the latest designs suggested for new process development facilities. AECD 2512.

PRODUCTION OF STABLE ISOTOPES AND THEIR USES IN RESEARCH, by W. C. Davis, L. O. Love and L. O. Gilpatrick. U. S. Atomic Energy Commission. Nov 1948. 7p diagrs, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10. PB 99366

General description of methods used at the Y-12 plant in Oak Ridge for the production of various stable isotopes; discussion of possible research applications of the stable isotopes produced. AECD 2436.

SCATTERING OF NEUTRONS BY POLYCRYSTALS, by R. G. Sachs. Aug 1947. 9p drawings, graphs Mi $1.25, Ph $1.25 (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10) PB 97010

Mathematical treatment and consideration from the view of simple wave optics; equations are developed which clearly set in evidence the physics of the process. AECD 2269.

SCREENING AND RELATIVISTIC EFFECTS ON BETA SPECTRA, by C. Longmire and H. Brown. U. S. Atomic Energy Commission. Sep 1948. 12p graphs, tables Limited supply mimeo $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 99315

The effect of screening by atomic electrons on the form of allowed beta-ray spectra of the Fermi theory is calculated approximately apparent deviation from theory caused by neglected screening is given for S35, Cu^{64}, and RAE (Bi210); the error incurred by using the non-relativistic form of the Coulomb correction factor is estimated for various emitters; references. AECD 2347.

TOTAL NEUTRON CROSS SECTIONS OF COMPOUNDS WITH DIFFERENT CRYSTALLINE STRUCTURES, by Lester Winsberg, David Meneghetti and S. S. Sidhu. U. S. Atomic Energy Commission. Argonne National Laboratory. Aug 1948. 10p graphs, table Limited supply mimeo: $.10. Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 99341

Neutron cross sections for CaO, TiC, T1Br, and ZnO were determined with a neutron velocity selector and neutron crystal spectrometer in the energy region of 0.001 to 1.0 electron volt and the results compared; theory, procedure, and experimental data; tables and graphs. AECD 2378.

USE OF THE URANIUM REACTOR IN RADIOCHEMICAL STUDIES, by R. T. Overman and J. A. Swarthout. Aug 1948. 11p diagr, graphs Mi $1.75, Ph $2.50. (Limited supply mimeo $.10) (Also available from U. S. Atomic Energy Commission, Oak Ridge, Tenn. Mimeo: $.10). PB 97011

Discussion of the following subjects: types of nuclear reactions, yield calculation, calculations of neutron density, determination of the neutron density, yield determinations, pile limitations, activation analyses, chemical effects of radiation, and conclusions; graphs. AECD 2245.

PHYSIOLOGY

DETERMINATION OF AMPLITUDE THRESHOLDS FOR THE VISUAL PERCEPTION OF VIBRATION, by M. N. Crook and others. Feb 1949. 17p tables Mi $1.75, Ph $2.50. PB 97080

This report concerns a study to determine the least amplitude of vibration which would be visually perceptible at reading distance under moderately good lighting conditions. Amplitude threshold was determined for the visual perception of vibration as a function of vibration frequency, brightness, type size, and serial position in a sequence of three successive threshold determinations. The report was prepared by Tufts College for the USAF Aero-Medical Laboratory. AAF TSEAA MR 694-1R.

PHYSIOLOGY, PT. III: ANIMAL PHYSIOLOGY AND PHYSIOLOGY OF PERCEPTION (WITH TWO APPENDIXES TO GENERAL PHYSIOLOGY), BY FRIEDRICH HERMANN REIN. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE 1939-1946). 1948. 381p drawing, graphs, tables (Text in

German) Mi $9.00, Ph $48.75, Mimeo: $3.00. PB 99208
Title page in English. Table of contents in English, French and German. For pt. 1 see PB 95681; for pt. 2 see PB 85008.

RUBBER AND RUBBER PRODUCTS

MISCHPOLYMERISATION α-SUBSTITUIERTER CROTONSAEUREESTER MIT BUTADIENE. (MIXED POLYMERIZATION OF α-SUBSTITUTED CROTONIC ACID ESTERS WITH BUTADIENE), by Reinhard Mayer. I. G. Farbenindustrie A. G., Schkopau, Ger. Apr 1944. 6p tables (Text in English and German) Mi $1.25, Ph $1.25. PB 98886
Crotonic (beta-methyl acrylic) acid esters, alone or in mixture with butadiene, are not polymerizable, while methacrylic (alpha-methyl acrylic) acid esters do polymerize readily. It was found that by placing a polar substituent in alpha position to the carboxyl group, crotonic acid esters capable of forming polymerizable mixtures with butadiene are obtainable. German portion is illegible. AAF T-2 T/3455.

REFERATE DER WISS. KAUTSCHUK-KOM, BAND CD (SYNTHETIC RUBBER). I. G. Farbenindustrie, A. G., Kautschuk-Zentral laboratorium, Leverkusen, Ger. Feb 1943. 170p graphs, tables (Text in German and English) Mi $6.25, Ph $21.25. PB 99154
1. Rubber, Synthetic - Fabrication - Germany 2. Rubber, Synthetic - Polymerization - Germany 3. Rubber, Buna - Stabilization - Germany 4. Isoprene - Polymerization - Germany 5. AAF T-2 T/4856.

RESEARCH ON RUBBER. ORGANISATION OF THE RUBBER INDUSTRY. I. G. Farbenindustrie A. G. 1938-40. 733f (Text in German or French) Mi $9.00, Enl Pr $96.25. PB 99182
1. Rubber, Synthetic - Fabrication - Germany 2. Rubber, Synthetic - Production - Germany 3. Rubber, Synthetic - Research - Germany 4. Micro BIOS FD 513/46, Frames 1-700.
Abstract available as PB 99182s. 14p. Mi $1.75, Ph $2.50.

VULKOLLANS AND VULKOPHENS, SYNTHETIC RUBBER BONDING AND COATING AGENTS. I. G. Farbenindustrie A. G., Leverkusen, Ger. 1942. 18f (Text in German) Mi $1.75, Ph $3.75. PB 99185
1. Coatings, Rubber - Synthetic - Germany 2. Bonding - Germany 3. Vulkolan (Trade name) 4. Vulkophen (Trade name) 5. Micro BIOS FD 2552/47, Frames 1-16.
Abstract in English.

STRUCTURAL ENGINEERING

BUCKLING LOADS OF FLAT SANDWICH PANELS IN COMPRESSION: THE BUCKLING OF FLAT SANDWICH PANELS WITH EITHER ALL EDGES SIMPLY SUPPORTED OR ALL EDGES CLAMPED, by K. H. Boller. U. S. Forest Products Laboratory, Madison, Wis. Mar 1948. 11p graphs, tables Available from U. S. Forest Products Laboratory, Madison, Wis. PB 98837
The experimental data of edgewise compression tests on flat sandwich panels made of paper honeycomb cores, and glass-cloth laminated facings are presented. Only

one thickness of facing and core material was investigated, but various sizes of panels were tested to provide as wide a range in critical stress as possible. Test results and computations show that the values of critical loads obtained from tests of panels with all edges simply supported are equal to the values obtained by substituting the mechanical properties of the materials in the formula; and in its subsequent modification for the effect of transverse shoar. The results of the tests of panels with all edges clamped, show that the values obtained from the test range from 80-100% of the values obtained from the formula and its modification. FPL 1525-E.

CRITICAL SHEAR STRESS OF A CURVED RECTANGULAR PANEL WITH A CENTRAL STIFFENER, by Manuel Stein and David J. Yaeger. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Oct 1949. 19p diagrs, graphs, tables Mi $1.75, Ph $2.50. PB 98942

A theoretical solution is given for the critical shear stress of a simply supported curved rectangular plate stiffened by a central stiffener offering no torsional restraint which lies in either the axial or circumferential direction. Results are obtained by means of the Galerkin method and are presented in the form of computed curves and tables. NACA TN 1972.

CRITICAL STRESS OF RING-STIFFENED CYLINDERS IN TORSION, by Manuel Stein, J. Lyell Sanders, Jr., and Harold Crate. U. S. Langley Aeronautical Laboratory, Langley Air Force Base, Va. Nov 1949. 17p graphs, tables Mi $1.75, Ph $2.50. PB 99307

A nondimensional chart is presented for the theoretical critical stress in torsion of simply supported cylinders stiffened by identical, equally spaced, torsionally weak rings. The results are obtained by solving the equation of equilibrium by means of the Galerkin method. Comparison of the theoretical results with the experimental results indicates that ring-stiffened cylinders buckle, on the average, at a buckling stress about 15 percent below the theoretical buckling stress presented. NACA TN 1981.

DATA ON THE COMPRESSIVE STRENGTH OF 75S-T6 ALUMINUM-ALLOY FLAT PANELS HAVING SMALL, THIN, WIDELY SPACED, LONGITUDINAL EXTRUDED Z-SECTION STIFFENERS, by William A. Hickman and Norris F. Dow. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Nov 1949. 22p Mi $2.00, Ph $3.75. PB 99104

The experimental results are presented for the second part of an investigation of the compressive strength of 75S-T6 aluminum-alloy flat panels with longitudinal extruded Z-section stiffeners. This part of the investigation is particularly concerned with panels in which the ratio of the thickness of the stiffener material to the skin material is small and the ratio of stiffener spacing to skin thickness is large. NACA TN 1978.

ELASTIC BUCKLING OF OUTSTANDING FLANGES CLAMPED AT ONE EDGE AND REINFORCED BY BULBS AT OTHER EDGE, by Stanley Goodman. U. S. National Bureau of Standards. Oct 1949. 25p drawings, graphs, tables Mi $2.00, Ph $3.75. PB 99095

The compressive buckling stress of outstanding flanges reinforced by bulbs was computed by the strain-energy method for flanges having 10 shapes and a range of

lengths. The results were checked for some cases by computations based on a differential-equation method. The edge of the flange opposite the bulb was considered clamped, and the loaded ends were considered simply supported. NACA TN 1985.

FATIGUE OF SANDWICH CONSTRUCTIONS FOR AIRCRAFT; ALUMINUM FACE AND END-GRAIN BALSA CORE SANDWICH MATERIAL TESTED IN SHEAR, by Fred Warren. U. S. Forest Products Laboratory, Madison, Wis. Apr 1948. 14p photos, drawings, diagrs, table Available from U. S. Forest Products Laboratory, Madison, Wis. PB 98827

A limited number of tests (30) have been made at the Forest Products Laboratory to determine the shear fatigue properties of an assembled sandwich panel with aluminum facings and end-grain balsa core. These tests have been made at a ratio of minimum to maximum loading of 0.1. The results of these tests and the corresponding S-N curve are presented. FPL 1559-B.

FATIGUE OF SANDWICH CONSTRUCTIONS FOR AIRCRAFT (ALUMINUM FACE AND PAPER HONEY COMB CORE SANDWICH MATERIAL TESTED IN SHEAR), by Fred Werren. U. S. Forest Products Laboratory, Madison, Wis. Dec 1947. 13p photos drawing, table Available from U. S. Forest Products Laboratory, Madison, Wis. PB 98847

A limited number of tests (25) have been made to determine the shear fatigue properties of an assembled sandwich panel with aluminum facings and paper honeycomb core. These tests have been made at a ratio of minimum to maximum loading of 0.1. The results of these tests and the corresponding S-N curve are presented. The tests indicate on the curve a fatigue strength at 30 million cycles of approximately 48% of the static strength for the condition of loading used. FPL 1559-A.

GUIDE TO A STUDY COLLECTION OF HOUSING PLANNING AND CONSTRUCTION TECHNIQUES. U. S. Dept. of State. May 1949. 40p photos, drawing Mi $2.25, Ph $5.00. PB 99015

METHODS FOR CONDUCTING MECHENICAL TESTS OF SANDWICH CONSTRUCTIONS AT NORMAL TEMPERATURE. U. S. Forest Products Laboratory, Madison, Wis. Mar 1948. 27p photos, diagrs Available from U. S. Forest Products Laboratory, Madison, Wis. PB 98826

Methods of conducting mechanical tests on sandwich constructions are described. These methods cover procedures for testing sandwich structures in compression, tension, bending, and shear at normal temperatures. Experience in the testing of sandwich constructions has been extensive enough to establish these procedures. The procedures have been followed by tests of a large number of specimens and have given satisfactory results. FPL 1556.

METHODS OF TEST FOR DETERMINING STRENGTH PROPERTIES OF CORE MATERIAL FOR SANDWICH CONSTRUCTION AT NORMAL TEMPERATURES. U. S. Forest Products Laboratory, Madison, Wis. Mar 1948. 22p photos, diagrs Available from U. S. Forest Products Laboratory, Madison, Wis. PB 98836

Test methods for determining strength properties of core materials for sandwich construction at normal temperatures are presented. These methods cover procedures for determining the following strength properties of core materials and of the glue lines between cores and faces: compression, both perpendicular and parallel to the plane of the sandwich, tension perpendicular to the plane of the sandwich, shear test for determination of the modulus of rigidity associated with shearing strains in

parallel to the plate, torsion pendulum shear test.for the determination of modulus of rigidity in any plane. FPL 1555.

PLASTIC BUCKLING OF EXTRUDED COMPOSITE SECTIONS IN COMPRESSION, by Elbridge Z. Stowell and Richard A. Pride. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Oct 1949. 15p Mi $1.75, Ph $2.50. PB 99045

The theory of plastic buckling, originally developed for individual plates, has been extended to apply to combinations of plates such as H- and Z-sections. The theory has been applied specifically to extruded H- sections of 75S-T6 aluminum alloy; the calculated buckling stresses agree satisfactorily with the results of tests. NACA TN 1971.

PRESSURE TESTS ON PLASTIC LAMINATED MATERIALS AND SANDWICH CONSTRUCTION, by W. G. Ramke. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, Ohio. Jul 1947. 15p photos, graphs, tables Mi $1.75, Ph $2.50. PB 98865

Test procedure developed for determining rate of air transmission of plastic materials is satisfactory within accuracy desired. Thin glass fabric base plastic laminates or honeycomb core sandwich constructions with thin glass fabric base plastic faces as usually fabricated by bag-molding may be unsatisfactory as to air transmission rate. AAF TSEAM M5227.

TEXTILES AND TEXTILE PRODUCTS

CUPRAMMONIUM RAYON CONTINUOUS PROCESS, I. G. FARBENINDUSTRIE, DORMAGEN, by J. B. Quig and others. Sep 1945. 2p Mi $1.25, Ph $1.25. PB 92012

1. Rayon, Cuprammonium - Manufacture - Germany 2. Spinning machines - Germany 3. I. G. Farbenindustrie A. G., Dormagen, Ger. 4. FIAT FR 61.

DEVELOPMENTS IN THE WEAR RESISTANCE OF TEXTILES AND RELATED PAPERS PUBLISHED IN GERMANY DURING WORLD WAR II. Melliand Textilberichte. n.d. 347p photos, drawings, graphs, tables Mi $9.00, Ph $43.75. Available from Office of Technical Services, Washington 25, D. C. $5.00. PB 99296

1. Textiles - Research - Germany 2. Textiles, Synthetic - Research - Germany 3. Developments in the wear resistance of textiles.

Compiled from articles that appeared mainly in Melliand Textilberichte from 1939 to 1947 and from unpublished manuscripts.

ABRIDGED EDITION. TREATMENT OF NYLON WEBBING TO INCREASE RESISTANCE TO ABRASION, by C. A. Willis. U. S. Air Materiel Command. Engineering Division. Materials Laboratory, Wright Field, Dayton, Ohio. Jun 1947. 3p Mimeo: $.25. PB 98652ab

1. AAF T-2 TR 5590, abridged 2. AAF TSEAM M5287, abridged.

Abridged edition of PB 98652.

MEASUREMENT OF R. F. TRANSMISSION THROUGH COATED FABRICS, by Leonard Hatkin. U. S. Camp Evans Signal Laboratory. Sep 1949. 20p photos, graphs, tables Mi $1.75, Ph $2.50. PB 99433

1. Fabrics, Coated 2. Radio waves - Transmission - Measurements 3. Radar - Domes - Electrical properties 4. SCEL TM M-1230.
Signal Corps Proj no. 2008-6. Dept. of the Army no. 3-91-02-802.

MOISTURE ADSORPTIVE PROPERTIES OF TEXTILE YARNS AT LOW TEMPERATURES, by R. C. Darling and H. S. Belding. Harvard University. Fatigue Laboratory. Nov 1945. 28p graphs, tables Mi $2.00, Ph $3.75. PB 99293
1. Yarn - Physical properties 2. Textiles - Moisture absorption 3. U. S. Office of Scientific Research and Development. Committee on Medical Research 4. HU FL 36.
Contract OEMcmr-54. Report 36. Serial no 156 RS/69-112.

SUSCEPTIBILITY OF SOME PARACHUTE TEXTILES TO MICROBIOLOGICAL ATTACK, by F. Millard. Gt. Brit. Ministry of Supply. Aeronautical Research Council. 1949. 6p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.45. PB 99412
1. Parachutes - Materials - Proofing - Gt. Brit. 2. ARC RM 2309.

TEXTILE INDUSTRIES OF CANADA 1943, 1944 AND 1945. Canada. Bureau of Statistics. General Manufactures Section. 1949. 202p tables (Text in English and French) Available from National Research Council, Ottawa, Canada $.50.
PB 99406

Included in the textile group are the various industries which employ at some stage in manufacture a common process of spinning and weaving and use common raw materials, the fibrous quality of the materials used (cotton, wool, linen and silk, both real and artificial) being the primary ground for the combination of these industries into a single group. Subdivision within the group is on the basis of the material used-cotton, wool, linen, silk. The report also covers various manufactures based on textiles as raw materials, such as hosiery and knitted goods, factory clothing, hats and caps, cordage, rope and twine, etc.

TRANSPORTATION EQUIPMENT

Aeronautics

Aircraft

AERODYNAMIC CHARACTERISTICS OF 15 NACA AIRFOIL SECTIONS AT SEVEN REYNOLDS NUMBERS FROM 0.7 X 10^6 TO 9.0 X 10^6, by Laurence K. Loftin, Jr., and Hamilton A. Smith. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Oct 1949. 75p graphs, tables Mi $3.50, Ph $10.00. PB 98941

Two-dimensional aerodynamic characteristics are presented for 15 NACA airfoils at seven Reynolds numbers from 9.0 x 10^6 to 0.7 x 10^6. The airfoils investigated include 10 NACA 6-series sections and 5 sections of the NACA 4-digit and 5-digit series. The data show the effects of systematic variations in airfoil thickness, thickness distribution, and camber upon the aerodynamic characteristics at each of the seven Reynolds numbers. The response of the airfoils to split flaps and the effects of surface condition are also shown at various Reynolds numbers. NACA TN 1945.

AN ANALYSIS OF THE EFFECT OF LIFT-DRAG RATIO AND STALLING SPEED ON LANDING-FLARE CHARACTERISTICS, by J. Calvin Lovell and Stanley Lipson. U. S. Langley Aeronautical Laboratory, Langley Air Force Base, Va. Sep 1949. 34p graphs, tables Mi $2.25, Ph $5.00. PB 98572

Results of calculations of the landing-flare paths of a series of hypothetical airplanes having systematically varying characteristics are presented in chart form to show the effect of lift-drag ratio and stalling speed on landing-flare velocities and distance requirements. Results indicate that airplanes landing at low lift-drag ratios will be required to start the landing flare at relatively high altitudes and will have relatively high sinking speeds at the start of the flare and at an altitude of 50 feet. Airplanes having high stalling speeds will require relatively large horizontal distances for either power-on or power-off landing flares. NACA TN 1930.

BOUNDARY-LAYER AND STALLING CHARACTERISTICS OF THE NACA 64A006 AIRFOIL SECTION, by George B. McCullough and Donald E. Gault. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Aug 1949. 24p photo, graphs Mi $2.00, Ph $3.75. PB 98923

A wind-tunnel investigation was conducted to determine the boundary-layer and stalling characteristics of an NACA 64A006 airfoil section. Force and pressure-distribution measurements, tuft studies, and boundary-layer measurements were obtained for a Reynolds number of 5,800,000. NACA TN 1923.

COLUMN TESTS OF 75 S-T EXTRUDED "J" STRINGERS, by R. H. Lynch and A. Epstein. Republic Aviation Corporation, Farmingdale, N. Y. Jan 1945. 13p diagrs, graphs, tables Mi $1.75, Ph $2.50. PB 98553

Column tests were conducted on different length extruded 75S-T "J" stringers of both the straight leg and wide leg type. The results of all panel tests are tabulated. It was found that the .102 gage straight leg extruded stringer has appreciably greater strength, in short lengths, than either the .102 gage wide leg stringer or the .091 gage formed straight leg stringer. The .102 gage wide leg extruded stringer shows considerable advantage over the .091 gage formed wide leg section.

CRITICAL MACH NUMBERS OF THIN AIRFOIL SECTIONS WITH PLAIN FLAPS, by Max A. Heaslet and Otway O'M. Pardee. Apr 1946. 25p drawing, graphs Mi $2.00, Ph $3.75. PB 94488

1. Mach numbers 2. Airfoils - Lift 3. NACA *N*-2 4. NACA ACR 6A30.

DAMPING-IN-ROLL CALCULATIONS FOR SLENDER SWEPT-BACK WINGS AND SLENDER WING-BODY COMBINATIONS, by Harvard Lomax and Max A. Heaslett. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Sep 1949. 32p diagrs, graphs Mi $2.25, Ph $5.00. PB 98644

The analysis is based on the usual assumptions of linearized compressible-flow theory together with the added restriction that at the free-stream Mach number M_o the product of $1-M_o2$ and the streamwise velocity gradient is small. The accuracy of the results is tested by a comparison with the exact solution of the linearized equation for a triangular wing. NACA TN 1950.

THE EFFECTS OF AERODYNAMIC BRAKES UPON THE SPEED CHARACTERISTICS OF AIRPLANES, by Jack D. Stephenson. U. S. Ames Aeronautical Laboratory, Moffett Field, Calif. Sep 1949. 42p drawings, graphs, tables Mi $2.50, Ph $6.25. PB 98576

Methods of calculating the speed and speed variations are presented. A graphical procedure is described which substantially reduces the time required for a step-by-step calculation of the speed, altitude, and dive-angle relationships for airplanes in maneuvers involving normal accelerations. A summary of data showing increments of drag coefficient measured in wind tunnels or in flight for various wing and fuselage aerodynamic brakes is included. NACA TN 1939.

EFFECTS OF SIDESLIP, ASPECT RATIO, AND MACH NUMBER ON THE LIFT AND PITCHING MOMENT OF TRIANGULAR, TRAPEZOIDAL, AND RELATED PLAN FORMS IN SUPERSONIC FLOW, by Arthur L. Jones and others. Aug 1949. 69p diagrs, graphs Mi $3.00, Ph $8.75. PB 98325

The variations of lift and pitching moment with sideslip in supersonic flow have been calculated for a representative group of plan forms. The variations of lift and pitching moment with aspect ratio and Mach number at zero sideslip were also investigated. The analysis was based on linearized potential theory and was applied to triangular, trapezoidal, rectangular, and swept-back plan forms without dihedral. NACA TN 1916.

EMPIRICAL DATA - CYCLE WELDED TUBES - COMPRESSION -MODEL XB-36 TEST NO. F-254, by J. R. Gunn. Consolidated Vultee Aircraft Corporation. Fort Worth Division, Fort Worth, Texas. Dec 1943. 10p photos, graphs, tables Mi $1.75, Ph $2.50. PB 98550

Tests were conducted to determine the strength of several cyclewelded tubes of various lengths and gages. The ends of all specimens were ground flat and parallel and tested. Tubes shorter than 3 inches in length were tested flat ended; the longer tubes were tested on knife edges. Before the ultimate load was applied, the tubes were aligned and centered in the testing machine to insure against lateral instability. A total of 63 specimens was tested. The results are submitted in the form of empirical data.

ERMITTLUNG DER STATISCHEN WERTE VON TRAGFLUEGELPROFILEN AUS TABELLEN. (DETERMINATION OF THE STATIC VALUES OF WING PROFILES FROM TABLES). Focke-Wulf Flugzeugbau G.m.b.H., Bremen, Ger. Jan 1938. 75p tables (Text in English and German) Mi $3.50, Ph $10.00. PB 98819

Tables and directions for their use are given for the determination of the static values of wing profiles. Values needed for dimensioning; gravity center of position, of static moment, moment of inertia, -drag moment and circumscribed cross sectional area, may be found in an essentially short time by merely reading-off the tables. In assembling the tables for static values the constructional dimensions of the shell were expressed in percentage of the chord. Report FW/11d/2859.

ESTIMATION OF THE DAMPING IN ROLL OF WINGS THROUGH THE NORMAL FLIGHT RANGE OF LIFT COEFFICIENT, by Alex Goodman and Glenn H. Adair. Jul 1949. 31p graphs, tables Mi $2.25, Ph $5.00. PB 98314

The development of three methods for calculating the damping in roll through the normal flight range of lift coefficient for wing plan forms having various sweep angles, aspect ratios, and taper ratios is presented and comparisons between experimental and calculated results are made. NACA TN 1924.

A FLIGHT INVESTIGATION OF THE EFFECTS OF COMPRESSIBILITY ON APPLIED GUST LOADS, by E. T. Binckley and Jack Funk. Aug 1949. 22p drawings, graphs,

tables Mi $2.00, Ph $3.75. PB 98393

Two jet-propelled airplanes were flown at different speeds in rough air to investigate the effects of compressibility on applied gust loads at Mach numbers up to 0.68. The results indicated that no compressibility correction to the slope of the lift curve was necessary. NACA TN 1937.

FLIGHT MEASUREMENTS OF THE LATERAL CONTROL CHARACTERISTICS OF NARROW-CHORD AILERONS ON THE TRAILING EDGE OF A FULL-SPAN SLOTTED FLAP, by Richard H. Sawyer. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1947. 9p photos, graphs Available from U. S. Govt. Printing Office, Washington 25, D. C. $.10. PB 98643

Results are presented of flight tests made to determine the effect of flap deflection on the lateral control characteristics of a modified Brewster F2A-2 airplane equipped with partial-span narrow-chord ailerons on the trailing edge of a full-span NACA slotted flap. The investigation included determination of the rolling and yawing characteristics of the airplane in abrupt aileron rolls with the slotted flap at various settings ranging from 0^{o} to about 40^{o}. NACA 883.

GROUND LOADS DURING TAXIING AND TAKE-OFF, MODEL 49, by D. C. Hill. Lockheed Aircraft Corp., Burbank, Calif. Apr 1944. 48p graphs Mi $2.50, Ph $6.25. PB 98527

A study was made of the conditions encountered by the C-69 cargo airplane during operations. These conditions include ground handling, ground maneuvering, taxiing, and take-off. Results of the examination are shown graphically and in tables. Report no. 4164.

GUST-TUNNEL INVESTIGATION OF A FLEXIBLE-WING MODEL WITH SEMICHORD LINE SWEPT BACK 45^{o}, by Thomas D. Reisert. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Oct 1949. 12p photo, drawing, graphs Mi $1.75, Ph $2.50. PB 98938

An investigation was made in the Langley gust tunnel of a flexible-wing model with the semichord line swept back 45^{o} to obtain experimental data on the amount of gust-load alleviation that might be expected as a result of the wings flexing under load. The results indicated that unless adverse pitching motion could be eliminated or reduced the over-all load reduction would be small. NACA TN 1959.

INVESTIGATION OF SPOILER AILERONS FOR USE AS SPEED BRAKES OR GLIDE-PATH CONTROLS ON TWO NACA 65-SERIES WINGS EQUIPPED WITH FULL-SPAN SLOTTED FLAPS, by Jack Fischel and James M. Watson. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Aug 1949. 60p drawings, graphs Mi $2.75, Ph $7.50. PB 98912

Contains results and discussion of an investigation of plug and retractable ailerons used as speed brakes or glide-path controls on an NACA 65-210 wing and NACA 65_2-215 wing of aspect ratio 5.76 equipped with full-span slotted flaps. Incremental lift, drag, and pitching-moment data are presented for various flap conditions through a large angle-of-attack range at Mach numbers from 0.13 to 0.75. NACA TN 1933.

ISOLATED AND CASCADE AIRFOILS WITH PRESCRIBED VELOCITY DISTRIBUTION, by Arthur W. Goldstein and Meyer Jerison. U. S. Flight Propulsion Research Laboratory, Cleveland, Ohio. 1947. 19p diagrs, graphs, tables Available from U.S. Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 98940

An exact solution of the problem of designing an airfoil with a prescribed velocity distribution on the suction surface in a given uniform flow of an incompressible perfect fluid is obtained by replacing the boundary of the airfoil by vortices. By this device, a method of solution is developed that is applicable both to isolated airfoils and to airfoils in cascade. Numerical illustrations of the method are given for the airfoil in cascade.

LINE-VORTEX THEORY FOR CALCULATION OF SUPERSONIC DOWNWASH, by Harold Mirels and Rudolph C. Haefeli. Aug 1949. 54p diagrs, graphs Mi $2.75, Ph $7.50. PB 98319

The perturbation field induced by a line vortex in a supersonic stream and the downwash behind a supersonic lifting surface are examined for the purpose of establishing approximate methods for determining the downwash behind supersonic wings. Lifting-line methods are presented for calculating supersonic downwash. The results are compared with the exact linearized solutions. NACA TN 1925.

LOW-SPEED EXPERIMENTAL INVESTIGATION OF A THIN, FAIRED, DOUBLE-WEDGE AIRFOIL SECTION WITH NOSE AND TRAILING-EDGE FLAPS, by Leonard M. Rose and John M. Altman. Aug 1949. 22p photo, drawing, graphs Mi $1.75, Ph $2.50. PB 98331

A faired, double-wedge airfoil section, 4.23 percent thick, was investigated with plain nose and trailing-edge flaps. The nose flap was 0.16 chord of the airfoil and the trailing-edge flap was 0.25 chord of the airfoil. Section lift, drag, and pitching-moment data are presented for A Reynolds number of 5,800,000 which corresponded to a Mach number of 0.17. NACA TN 1934.

MEASUREMENTS IN THE BOUNDARY LAYER OF A YAWED WING, by A. M. Kuethe, P. B. McKee, and W. H. Curry. Michigan. University, Ann Arbor, Mich. Sep 1949. 16p photos, graphs Mi $1.75, Ph $2.50. PB 98579

Measurements of the velocity profiles in the turbulent boundary layer on the upper surface of a wing of semielliptical plan form at an angle of yaw of 25^{o} and angles of attack of 12^{o} and 14^{o} are reported along with pressure distributions. The chordwise (velocity components inclined 25^{o} to the main wind direction) and spanwise boundary layers were calculated. NACA TN 1946.

METHOD OF DESIGNING AIRFOILS WITH PRESCRIBED VELOCITY DISTRIBUTIONS IN COMPRESSIBLE POTENTIAL FLOWS, by George R. Costello. Aug 1949. 25p diagrs, graphs Mi $2.00, Ph $3.75. PB 98326

By the assumption that the pressure-volume relation is linear, a method is given for computing the airfoil shape with a prescribed velocity distribution in a potential flow of a compressible nonviscous fluid. NACA TN 1913.

MODEL 49 RIB TESTS, by P. F. Sandorff and W. D. Moore. Lockheed Aircraft Corp., Burbank, Calif. Jun 1940. 203p photos, graphs, tables Mi $7.50, Ph $26.25. PB 98524

Tests were made of representative ribs of the stub, inner and outer wing of the C-69 cargo airplane. Specimens of upper and lower rib flanges were built and tested to determine the margins of safety. Ten different configurations of the stub wing rib were tested for strength under cabin air pressure and crushing loads. Tests were made to determine the wing rib strength at stations 105, 312, 480, and 569. Stress measurements were also made on the rib at station 105. The data compiled in this report have been used in several wing analyses.

MODEL B-29. FUNCTIONAL TEST PROCEDURE, CABIN HEATING, VENTILATING AND WINDOW DE-FOGGING SYSTEM, by C. W. Jonassen. Boeing Aircraft Co., Seattle, Wash. Jan 1943. 6f Mi $1.25, Enl Pr $2.50. PB 98446
1. B-29 (Airplane) 2. Airplanes - Cabins - Temperature control 3. Airplanes - De-icing 4. Ventilation - Airplanes.
Report D-4381.

POSSIBLE EFFECTS OF HEAVY RAIN ON AIRCRAFT, by J. S. Sawyer. Gt. Brit. Air Ministry, Meteorological Office. 1949. 7p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10. PB 99324
Professional notes no. 99 (v. 6, no. 19) M. O. 4205.

PRODUCTION ANALYSIS REPORT FOR CONTRACT W-535-AC-18665, by Roy D. Chapin, Jr. Hudson Motor Car Co., Detroit, Mich. May 1942. 192f photos, drawings, tables Mi $7.00, Enl Pr $26.25. PB 98445
1. B26-B (Bomber) 2. Airframes - Materials.

THE REVERSIBILITY THEOREM FOR THIN AIRFOILS IN SUBSONIC AND SUPERSONIC FLOW by Clinton E. Brown. Langley Memorial Aeronautical Laboratory, Langley Field, Va. Sep 1949. 9p Mi $1.25, Ph $1.25. PB 98510
The present paper makes use of and extends a paper by Munk in which simple dynamic concepts are used to prove that the lift-curve slope and thickness drag of supersonic airfoils or system of airfoils with supersonic edges are the same when the airfoil is flown in a reversed direction. The theorem applies to cases in which the trailing-edge velocities are finite; no restrictions are placed on plan form. NACA TN 1944.

SPLICE-XF-12 DOOR, GASOLINE TANK, by H. Robinson. Republic Aviation Corp., Farmingdale, N. Y. Aug 1944. 7p diagrs, graph Mi $1.25, Ph $1.25. PB 98835
Three proposed splice joints for the XF-12 photo reconnaissance airplane were tested to determine the effective load distribution of the various combinations of attachments used. The joints consisted of an 0.078 "Z" extrusion of 75S-T attachment to a .102 sheet. This combination is attached to a .125 extrusion of 75S-T with 1/4" steel 115° head screws. Three methods of attaching the "Z" extrusion to the .102 sheet were investigated to determine which is the most satisfactory for use in the airplane. Report ERMR-177. USAF Project MX 495.

STRUCTURES BULLETINS, by O. J. Schaefer and others. Martin, Glenn L. Co., Baltimore, Md. Oct 1939. 220p photos, diagrs, graphs, tables Mi $7.75, Ph $27.50. PB 98534
A number of bulletins were compiled on the general subject of aircraft stress analysis. The compilation was intended to eliminate the necessity which commonly occurs in making a stress analysis of referring to numerous text books and articles in the technical press. Valuable information is gathered which applied not only to the particular design in question but also to designs in general. Unnecessary duplication in the determination of sections, derivation of formulas, etc. was eliminated by the compilation. The contents include tension field beams, beams with shear resisting webs, stability of rectangular plates under shear and bending forces, web tension stresses in thin web beams, distances from sides of a trapezoid to its centroid, general formula for loading on a trapezoidal surface with a uniform load, etc.

SUBSONIC AND SUPERSONIC TESTS ON A 7½ PER CENT BI-CONVEX AEROFOIL, by W. F. Hilton. May 1944. 10p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70. PB 92945
1. Airfoils - Tests - Gt. Brit. 2. ARC RM 2196.

SUMMARY OF AIRFOIL DATA, by Ira H. Abbott, Albert E. von Doenhoff, and Louis S. Stivers, Jr. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1945. 269p drawings, graphs, tables Available from Govt. Printing Office, Washington 25, D. C. $1.50. PB 99008
The purpose of this report is to summarize these data and to correlate and interpret them insofar as possible. New information on the aerodynamic characteristics of NACA airfoils is presented. Recent information on the aerodynamic characteristics of NACA airfoils is presented. New data are presented that permit the rapid calculation of the approximate pressure distributions for the older NACA four-digit and five-digit airfoils by the same methods used for the NACA 6-series airfoils. NACA 824.

SUMMARY OF DRAG CHARACTERISTICS OF PRACTICAL-CONSTRUCTION WING SECTIONS, by John H. Quinn, Jr. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Jul 1946. 23p photos, graphs, table Available from Supt. Documents, Gov't. Printing Office, Washington 25, D. C. $.20. PB 99098
The effects of several parameters on the drag characteristics of practical-construction wing sections have been considered and evaluated. The effects considered were those of surface roughness, surface waviness, compressive load, and de-icers. NACA 910.

SUMMARY OF INFORMATION RELATING TO GUST LOADS ON AIRPLANES, by Philip Donely. U. S. Langley Aeronautical Laboratory, Langley Field, Va. Nov 1949. 145p photos, graphs, tables Mi $5.75, Ph $18.75. PB 99141
Available information on gust structure, airplane reactions, and pertinent operating statistics has been examined. This paper attempts to coordinate this information with reference to the prediction of gust loads on airplanes. The material covered represents research up to October 1947. NACA TN 1976.

THEORETICAL RELATIONS BETWEEN THE STABILITY DERIVATIVES OF A WING IN DIRECT AND IN REVERSE SUPERSONIC FLOW, by Sidney M. Harmon. National Advisory Committee for Aeronautics. Sep 1949. 47p drawings, table Mi $2.50, Ph $6.25. PB 98638
Contains an investigation by means of the linearized theory to obtain relations between the stability derivatives of a wing and its reverse in supersonic flow. The wings investigated have a supersonic leading edge, a supersonic trailing edge, and either supersonic side edges or subsonic nonre-entrant side edges which are noninteracting. The investigation is made for thin flat-plate wings for steady vertical and longitudinal motions, steady rolling and pitching, and motions in which the wing is accelerating uniformly in the vertical direction. NACA TN 1943.

THEORETICAL STUDY OF AIR FORCES ON AN OSCILLATING OR STEADY THIN WING IN A SUPERSONIC MAIN STREAM, by I. E. Garrick and S. I. Rubinow. U. S. Langley Aeronautical Laboratory, Langley Field, Va. 1947. 18p diagrs, graphs Available from Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. $.15. PB 98914

A theoretical study, based on the linearized equations of motion for small disturbances, is made of the air forces on wings of general plan forms moving forward at a constant supersonic speed. NACA 872.

TOW-DIMENSIONAL INVESTIGATION OF FIVE RELATED NACA AIRFOIL SECTIONS DESIGNED FOR ROTATING-WING AIRCRAFT, by Raymond F. Schaefer and others. Jul 1949. 41p graphs, tables Mi $2.50, Ph $6.25. PB 98315

Five NACA airfoils intended for use in rotor blades have been designed and the two-dimensional aerodynamic characteristics have been determined at three Reynolds numbers up to 2.6×10^6. The airfoils vary in thickness from 9 to 15 percent chord and in design lift coefficient from 0.3 to 0.7. The relative performance of sample rotors employing the different airfoils is predicted for various flight conditions. NACA TN 1922.

Instruments

ALLGEMEINES VERHALTEN EINES KREISELS UNTER DER EINWIRKUNG VON MOMENTEN, EXPERIMENTELL NACHGEPRÜFT. (GENERAL BEHAVIOR OF A GYRO UNDER THE INFLUENCE OF MOMENTS, EXPERIMENTALLY CHECKED). Göttingen, Technische Hochschule. n.d. 10p drawing (Text in German) Mi $1.25, Ph $1.25. PB 98132

The characteristics of a gyroscope were experimentally checked for friction and static moments and moments resulting from mass misalignment caused by centrifugal force or by shifting of the suspension of the gyro. In comparing moments experimentally obtained with those calculated for Coriolis moments, it was established that both values are measurably equal. Thus it was deduced that in a rotating gyro only a Coriolis moment and no other moment appears in measurable dimensions. No misalignment caused by centrifugal forces was established.

ANALYSIS OF THE TYPES OF ERRORS MADE BY NOVICES IN INTERPRETING AZIMUTH INDICATORS WHEN THE BEARINGS ARE ADMINISTERED VERBALLY, by Roger Brown Loucks. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Oct 1949. 23p photos Mi $1.75, Ph $2.50. PB 99439

A total of 256 subjects has been tested in an azimuth trainer to evaluate the relative effectiveness of two forms of verbal orders for attaining bearings. Although the novice has no particular difficulty in learning to move the appropriate rudder pedal the design of the conventional remote indicating compass is such as to induce a relatively high number of errors. AAF TR 5958.

THE EFFECT OF DIAL DIAMETER ON OCULAR MOVEMENTS AND SPEED AND ACCURACY OF CHECK READING GROUPS OF SIMULATED ENGINE INSTRUMENTS, by William J. White. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Jun 1949. 20p photos, tables Mi $1.75, Ph $2.50. PB 99444

To determine some of the psychological factors which influence check reading of instrument groups, experiments were conducted on the effect of dial diameter on eye movements and on speed and accuracy of reading. The task of the subject to check reading a presentation of sixteen simulated engine instruments with pointers aligned horizontally and to indicate alignment or misalignment by a hand-held toggle switch. Dials of three sizes, 1 inch, 1 3/4 inches, and 2 3/4 inches in diameter were studied. The three dial diameters were studied in relation to response time,

errors, frequency, and duration of fixations. A definite pattern of fixations was demonstrated, which has significance for location of the most critical instruments. AAF TR 5826.

EFFECT OF TRANSMISSION-TYPE CONTROL LAGS ON TRACKING ACCURACY, by Melvin J. Warrick. U. S. Air Materiel Command. Engineering Division. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 22p drawings, graphs, tables Mi $2.00, Ph $3.75. PB 99443

The present investigation was conducted to determine what effect, a transmission-type control lag has on operator accuracy in a compensatory tracking task. Twenty-five subjects were required to attempt to maintain an indicator pointer on center in such a manner as to compensate for what otherwise would be a complex oscillatory motion of the pointer. On the basis of the experimental findings, it is concluded that any amount of transmission-type control lag adversely affects tracking accuracy as measured by time on target. AAF TR 5916.

GAGE UNIT CALIBRATION FOR SUPERSONIC WIND TUNNEL BALANCE SYSTEM, by D. H. Latham. Michigan. University. Aeronautical Research Center, Willow Run Airport, Ypsilanti, Mich. Mar 1948. 15p photos, graphs, tables Mi $1.75, Ph $2.50. PB 98832

This report contains a description and discussion of static testing carried out on the balance system strain gage units for a supersonic tunnel. The static bench cali bration was completed and calibration of the balance system was begun. The three gage units were calibrated for the three ranges for both positive and negative loading, for three amplifier sensitivities based on maximum scale deflection possible, and for several amplifier channels. Readings were taken of train gage current as a function of load and of oscillograph scale reading versus load. Report no. EMR-11.

STUDIES PERTAINING TO THE DESIGN OF VISUAL DISPLAYS FOR AIRCRAFT INSTRUMENTS, COMPUTERS, MAPS, CHARTS, TABLES AND GRAPHS; A REVIEW OF THE LITERATURE, PREPARED AT PRINCETON UNIVERSITY. U. S. Air Materiel Command, Wright Field, Dayton, Ohio. Apr 1949. 111p photos, graphs, tables Mi $4.75, Ph $15.00. PB 99441

This report summarizes the literature which it is pertinent to consider in developing certain types of visual displays for use in aircraft and in planning new research for the design of these displays. It brings together information from the following sources: the general visual literature in psychology and physiology, portions of the non-scientific literature on aviation problems, research reports prepared by service organizations during the war period, minutes of the meetings of various advisory groups on aviation problems, and the reports of more recently organized contract research groups. The report attempts to point out where facts and principles have been well established and where there are problems which still demand research clarification. Contract W 33-038-ac-14480. AAF TR 5765.

ÜBER BEWEGUNGEN EINES SCHWINGERS UNTER DEM EINFLUSS VON SCHWARZ - WEISS STEUERUNGEN. (ON THE MOTIONS OF AN OSCILLATING SYSTEM UNDER THE INFLUENCE OF FLIP-FLOP CONTROLS), by I. Flügge-Lotz and K. Klotter. Nov 1949. 57p graphs Mi $2.75, Ph $7.50. PB 99331

An analysis is presented of the motions of an oscillating system of one degree of freedom under the influence of flip-flop (flicker) controls. The control operation is

dependent on the angular deviation and the rate of angular deviation. The investigation aims to obtain a survey of the influence of the system and control coefficients on the damping which is to be attained. Translation of ZWB Untersuchungen und Mitteilungen no. 1326, Aug 1, 1943. NACA TM 1237. ZWB UM 1326, trans.

MISCELLANEOUS

APPLIED MATHEMATICS, PT. V: KINEMATICS, GEOMETRICAL OPTICS, CRISTALLOGRAPHY, APPLICATIONS IN ELECTRO-TECHNICS, GEOPHYSICS, ASTRONOMY, BALLISTICS, GYROSCOPE DEVICES, BY ALWIN WALTHER AND OTHERS. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE 1939-1946). 1948. 267p drawings (Text in German) Mi $9.00, Ph $32.50, Mimeo: $3.00. PB 99210

1. Mathematics, Applied - Germany 2. Kinematics - Germany 3. Optics, Geometrical - Germany 4. Crystallography - Germany 5. Electrotechnology - Mathematics - Germany 6. Geophysics - Mathematics - Germany 7. Astronomy - Mathematics - Germany 8. Ballistics - Mathematics - Germany.

For pt. 1 see PB 85024; for pt. 2 see PB 85043; for pt. 3 see PB 85012; for pt. 4 see PB 85044.

GEOGRAPHY, PT. III. II. EUROPE (WITH THE EXCEPTION OF CENTRAL EUROPE) BY H. VON WISSMANN AND OTHERS. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE, 1939-1946). 1948. 130p (Text in German) Mi $5.00, Ph $16.25, Mimeo: $3.00. PB 99202

Title page in English. Table of contents in English, German and French. For pt. 1 see PB 99201, for pt. 2 see PB 85045, for pt. 4 see PB 99203.

GEOGRAPHY, PT. IV, BY H. VON WISSMANN AND OTHERS. U. S. FIELD INFORMATION AGENCY, TECHNICAL. (FIAT REVIEW OF GERMAN SCIENCE, 1939-1946). 1948. 181p (Text in German) Mi $6.75, Ph $23.75, Mimeo: $3.00. PB 99203

1. Geography - Germany 2. Geography - Poland 3. Geography - Czechoslova Republic 4. Geography - Switzerland 5. Geography - Austria.

For pt. 1 see PB 99201, for pt. 2 see PB 85045 for pt. 3 see PB 99202.

HHFA TECHNICAL BULLETIN NO. 10. U. S. Housing and Home Finance Agency. May-Jul 1949. 36p drawings, map, tables Available from Supt. Docs., Government Printing Office, Washington 25, D. C. $.20. PB 99074

Application of the floor furnace in the heating of small houses, by Robert K. Thulman; condensation control in dwelling construction: good practice recommendations, by Ralph R. Britton; Individual sewage disposal systems pt. 2 (pt. 1 issued in Technical bulletin no. 7, Nov 1948. PB 96689). HHFA TB 10.

THE JIOA SUBJECT INDEX OF SCIENTIFIC AND TECHNICAL REPORT. FIAT, V. 1: UNCLASSIFIED FIAT REPORTS. Joint Intelligence Objectives Agency. 1949. 523p Mi $9.00, Ph $66.25. PB 98192

LABORATORY AND SERVICE TESTS OF HAND LUGGAGE, by Edward T. Steiner, Robert B. Hobbs, and Elizabeth R. Hosterman. U. S. National Bureau of Standards. Jul 1949. 23p photos, tables Available from U. S. Govt. Printing Office, Washington 25, D. C. $.15. PB 98582

Consists of tests on various types of luggages and materials tested for service and durability. Miscellaneous publication 193.

LABORATORY RESEARCH FOR THE DETERMINATION OF THE THERMAL PROPERTIES OF SOILS. FINAL REPORT, by Miles S. Kersten. Minnesota. University. Engineering Experiment Station. Jun 1949. 231p photos, drawing, graphs, tables Available from Office of the Chief of Engineers, Washington 25, D. C. $2.00. PB 98586

This report presents the results of an investigation to determine the thermal properties of a variety of soils and insulating materials. Four charts are presented to aid in the prediction of conductivity values of any other soil.

LÄGEPLAN GASWERKE, BOHLEN. Sächsische Werke, Bohlen. Aug 1940. 224f drawings, diagrs Mi $8.00, Enl Pr $30.00. PB 98910
1. Micro BIOS FD 3188/46, Frames 1-224.
Drawings only. Legends in German.

NON-DESTRUCTIVE MATERIAL TESTING, by E. Brandenberger. May 1942. 10p photos, graphs, tables Mi $1.25, Ph $1.25. PB 98082

Various methods used in production testing of materials are evaluated. It is concluded that the success of nondestructive material testing depends on the use not of a single method, but a fitting combination of several methods. Translation from Schweizer Archiv, v. 8, no. 5, May 1942, p. 157-165.

NUMERICAL INDEX TO THE BIBLIOGRAPHY OF SCIENTIFIC AND INDUSTRIAL REPORTS, VOLS 1-10, 1946-1948. EDITED BY THE SCIENCE TECHNOLOGY GROUP, SPECIAL LIBRARIES ASSOCIATION. COMPILED BY THE SCIENCE-TECHNOLOGY GROUP, SPECIAL LIBRARIES COUNCIL OF PHILADELPHIA AND VICINITY, WITH THE CO-OPERATION OF SOCONY-VACUUM LABORATORIES, PAULSBORO, N. J. AND OFFICE OF TECHNICAL SERVICES. 1949. 529p Available from Special Libraries Association, 31 East 10th St., New York 3, N. Y. $10.00. PB 98050
1. Scientific research - Bibliography 2. Industrial research - Bibliography 3. Technical research - Bibliography.

PARACHUTES. Germany. Reichsluftfahrtministerium. 1942-1944. 368f (Text in German) Mi $9.00, Enl Pr $48.75. PB 91425

Abstracts available as PB 91425s. 2p. Mi $1.25, Ph $1.25. Micro BIOS FD 5744/45, Frames 1-384.

PROCEEDINGS. Northern California Research Conference. 1st, San Francisco, 1949. 1949. 68p drawings, graphs, tables Available from Stanford Research Institute, Stanford, Calif. $2.00. PB 99424
1. Industrial research 2. Scientific research 3. Atomic power - Research 4. San Francisco Chamber of Commerce, San Francisco, Calif. 5. California. University 6. Stanford University, Stanford, Calif. 7. Stanford Research Institute, Stanford, Calif.

QUALITY CONTROL CHART TECHNIQUE. U. S. Bureau of Ordnance. Aug 1949. 26p graphs, tables Mi $2.00, Ph $3.75. PB 99323

The purpose of this publication is to acquaint personnel with one of the important quality control techniques used in the plant to make possible the diagnosis and

correction of production troubles at the earliest point in the process before defective material has been produced. NAVORD 492.

REPORT FOR THE YEAR 1947-48, WITH REVIEW OF THE YEARS 1938-48. Gt. Brit. Dept. of Scientific and Industrial Research. 1949. 109p fold graph, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70. PB 99397

1. Scientific research - Gt. Brit. 2. Industrial research - Gt. Brit. Cmd. 7761.

REPORT OF FIRE RESEARCH BOARD WITH THE REPORT OF THE DIRECTOR OF FIRE RESEARCH FOR THE YEAR 1948. Gt. Brit. Dept. of Scientific and Industrial Research and Gt. Brit. Fire Offices Committee. 1949. 43p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35. PB 99423

1. Fire Protection - Standards - Gt. Brit.

RESEARCH IN INDUSTRY, by Sir Edward Appleton and others. 1948. 84p table Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.55. PB 97127

A series of articles originally published in the "Board of Trade Journal" between May 1947 and March 1948. The subjects covered include cotton, glass, wool, rayon, pottery, iron and steel electronics, lace, linen, boots and shoes, paint, furniture, the electrical industry and consumer goods plastics, machine tools, light engineering, industrial design, and radar. Appendixes list the establishments of the British Dept. of Scientific and Industrial Research and Industrial Research Associations.

SOIL, PEOPLE, AND FERTILIZER TECHNOLOGY. U. S. Tennessee Valley Authority. 1949. 61p photos, maps, graphs Available from U. S. Govt. Printing Office, Washington 25, D. C. $.30. PB 98585

SPRINKLER IRRIGATION. U. S. Bureau of Reclamation. Apr 1949. 68p photos, drawings, graph, tables Available from Supt. of Documents, Washington 25, D. C. $. 20. PB 98581

Gives advantages and disadvantages of various sprinkler system, showing suitability to individual or community needs. Comparative costs of irrigation methods are included.

STATISTICAL EVALUATION OF SERIAL EXPERIMENTS AND SAMPLES TAKEN AT RANDOM, by Ludwig Kuettner. 1943. 5f (Text in German) Mi $1.25, Enl Pr $2.50. PB 90713

1. Sequential analysis - Germany 2. Micro BIOS FD 1630/47, Frames 1-5. Abstracts available as PB 90713s. 1p. Mi $1.25, Ph $1.25.

TEST OF HEATER, TENT, VAPORIZING, TANK TYPE X-1-1947 (BREESE, INC.) AT 65°F, by Norman Bright. U. S. Air Materiel Command. Aero-Medical Laboratory, Wright Field, Dayton, Ohio. Sep 1949. 15p photos, drawings, tables Mi $1.75, Ph $2.50. PB 99099

1. X-1-1949 (Heater) 2. Heaters, Tent - Tests 3. Breese Burners, Inc., Santa Fe, New Mexico 4. AAF TSEAA MR 670-2P.

UNTERSUCHUNGEN DER HIMMELSHELLIGKEIT IN DER UMGEBUNG DER SONNE. (INVESTIGATIONS OF CELESTIAL BRIGHTNESS SURROUNDING THE SUN), by Dietrich Stranz. Leipzig. Universität. Geophysikalisches Institut und Observatorium. 1940. 74p photos, diagrs, graphs, tables (Text in German) Mi $3.50, Ph $10.00. PB 98136

Special papers from the Geophysical Institute and Observatory, Leipzig. 2nd ser. Vol. 12, no. 4.

VERSUCHE ZUR AUFFINDUNG DER SONNE UNTER AUSNUTZUNG IHRER STRAHLUNG (ULTRAROTEN) MIT FERNAKTINOMETER. (TESTS ON LOCATING THE SUN USING ITS INFRARED RADIATION AND A REMOTE ACTINOMETER). U. S. Camp Evans Signal Laboratory, Belmar, New Jersey. n.d. 20p photos, graphs Mi $1.75, Ph $2.50. PB 94641

The position of the sun could be determined to within 0.5 degree through altocumulus, altostratus and stratocumbus clouds of medium density by means of a remote actinometer. The sun could not be located during rain or very thick cloud covers. SIG IS T 147.

VISITS TO EIGHT GERMAN FACTORIES. Netherlands Military Mission. Technical Research. May 1947. 35f Mi $2.25, Enl Pr $6.25. PB 98911

1. Sodafabrik für Kali-Chemie Heilbronn & Neckar, Heilbronn, Ger. 2. Kalle & Co., A. G., Wiesbaden, Ger. 3. Pemosin Werke G.m.b.H., Raunheim, Ger. 4. Deutsche Kunstlederwerke Wolfgang G.m.b.H., Wolfgang, Ger. 5. Frankfurter Bronzefarben und Aluminumpulverwerke A. G., Wehrheim, Ger. 6. Blattmetall Fabrik Julieno-Schopflocker A. G., Wehrheim, Ger. 7. Bergin A. G. für Holzanalyse, Mannheim, Ger. 8. Rheinische Gummi und Celluloidwarenfabrik, Mannheim, Ger. 9. Micro BIOS FD 3279/48, Frames 1-35.

PATENTS

Chemicals and Allied Products

ADHESIVE MATERIAL: USING POLYMERIZATION PRODUCTS OF CROTYLIDENE CYANOACETIC ACIDS. I. G. Farbenindustrie A. G., Frankfurt am Main, Ger. Dec 1948. 6p Available from Research Information Service, 509 Fifth Avenue, New York 17, N. Y. $4.00. PB 97062

1. Adhesives - Patents - Germany 2. Cyanoacetic acid - Polymerization - Patents - Germany 3. Patents - Germany - I 55117 IVd/22i May 1936 4. GP 721023.

HERSTELLUNG VON REINSTER ESSIGSAURER TONERDE NIEDRIG ACETATGEHALTE (PRODUCTION OF SOLID AND WATER SOLUBLE ALUMINA ACETATE OF HIGHEST PURITY AND LOW FREE ACETIC ACID CONTENT). Steinkohlenbergwerk Rheinpreussen, Homburg, Ger. 1943-1944. 8f (Text in German) Mi $1.25, Enl Pr $2.50. PB 98995

1. Alumina - Production - Germany - Patents 2. Patents - Germany. St 63 7555 IVd/120 Dec 29, 1943 3. Patents - Germany. St 63 944 IVd/120 Mar 14, 1944 4. Micro BIOS FD 1309/49, Frames 1-7.